

**SITE INVESTIGATION  
REPORT FOR IRP SITES  
NO. 25 AND NO. 26**

**VOLUME IV**

**148th FIGHTER WING  
MINNESOTA AIR NATIONAL GUARD  
DULUTH AIR NATIONAL GUARD BASE  
DULUTH, MINNESOTA**

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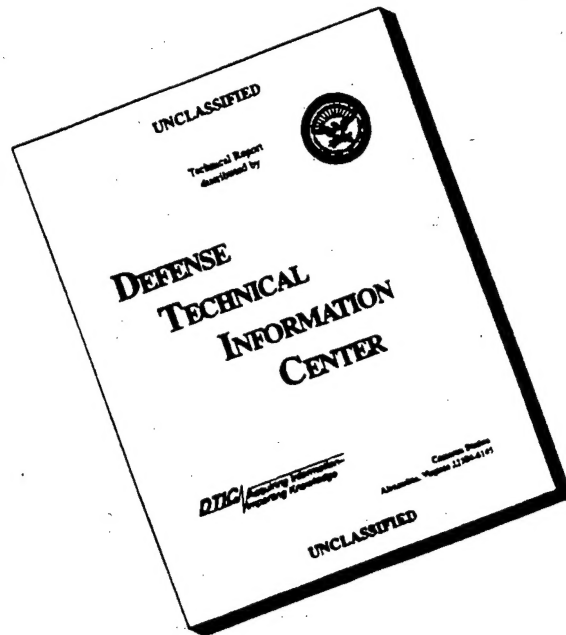
**JUNE 1996**



**19960809 036**

*Prepared For*  
**HQ ANG/CEVR  
ANDREWS AFB, MARYLAND**

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1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE July, 1996		3. REPORT TYPE AND DATES COVERED Site Investigation Report
4. TITLE AND SUBTITLE Site Investigation Report for IRP Sites No. 25 and No. 26, 148th Fighter Wing, Duluth Air National Guard Base, Duluth, MN. Volume IV			5. FUNDING NUMBERS	
6. AUTHOR(S)  NA				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  Operational Technologies Corp. 4100 N.W. Loop 410, Suite 230 San Antonio, TX 78229-4253			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)  ANGRC/CEVR 3500 Fetchet Avenue Andrews AFB MD 20762-5157			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT  Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)  Site Investigation Report for IRP Sites No. 25 and No. 26, 148th Fighter Wing, Duluth Air National Guard Base, Duluth, MN, Volume II, Appendix M. This is the fourth volume of a four volume site investigation report. This investigation involves two sites; site 25 -- Old Motor Pool area, and site 26 -- Ramp Disposal Area. Soil and groundwater contamination above state action levels were found at site 25; no significant contamination was found at site 26. Site 25 cleanup will be included in the scheduled cleanup of site 21.				
14. SUBJECT TERMS  Installation Restoration Program; Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); Air National Guard; Site Investigation, Minnesota Air National Guard; Duluth, MN.			15. NUMBER OF PAGES 1004	
17. SECURITY CLASSIFICATION OF REPORT Unclassified			16. PRICE CODE	
18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified		19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified		20. LIMITATION OF ABSTRACT None

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The Report Documentation Page (RDP) is used in announcing and cataloging reports. It is important that this information be consistent with the rest of the report, particularly the cover and title page. Instructions for filling in each block of the form follow. It is important to *stay within the lines* to meet optical scanning requirements.

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**Block 2. Report Date.** Full publication date including day, month, and year, if available (e.g. 1 Jan 88). Must cite at least the year.

**Block 3. Type of Report and Dates Covered.** State whether report is interim, final, etc. If applicable, enter inclusive report dates (e.g. 10 Jun 87 - 30 Jun 88).

**Block 4. Title and Subtitle.** A title is taken from the part of the report that provides the most meaningful and complete information. When a report is prepared in more than one volume, repeat the primary title, add volume number, and include subtitle for the specific volume. On classified documents enter the title classification in parentheses.

**Block 5. Funding Numbers.** To include contract and grant numbers; may include program element number(s), project number(s), task number(s), and work unit number(s). Use the following labels:

C - Contract	PR - Project
G - Grant	TA - Task
PE - Program Element	WU - Work Unit Accession No.

**Block 6. Author(s).** Name(s) of person(s) responsible for writing the report, performing the research, or credited with the content of the report. If editor or compiler, this should follow the name(s).

**Block 7. Performing Organization Name(s) and Address(es).** Self-explanatory.

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**Block 9. Sponsoring/Monitoring Agency Name(s) and Address(es).** Self-explanatory.

**Block 10. Sponsoring/Monitoring Agency Report Number.** (If known)

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**Block 12a. Distribution/Availability Statement.** Denotes public availability or limitations. Cite any availability to the public. Enter additional limitations or special markings in all capitals (e.g. NOFORN, REL, ITAR).

DOD - See DoDD 5230.24, "Distribution Statements on Technical Documents."  
DOE - See authorities.  
NASA - See Handbook NHB 2200.2.  
NTIS - Leave blank.

### Block 12b. Distribution Code.

DOD - Leave blank.  
DOE - Enter DOE distribution categories from the Standard Distribution for Unclassified Scientific and Technical Reports.  
NASA - Leave blank.  
NTIS - Leave blank.

**Block 13. Abstract.** Include a brief (Maximum 200 words) factual summary of the most significant information contained in the report.

**Block 14. Subject Terms.** Keywords or phrases identifying major subjects in the report.

**Block 15. Number of Pages.** Enter the total number of pages.

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**Blocks 17. - 19. Security Classifications.** Self-explanatory. Enter U.S. Security Classification in accordance with U.S. Security Regulations (i.e., UNCLASSIFIED). If form contains classified information, stamp classification on the top and bottom of the page.

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**SITE INVESTIGATION  
REPORT FOR IRP SITES  
NO. 25 AND NO. 26**

**VOLUME IV**

**148th FIGHTER WING  
MINNESOTA AIR NATIONAL GUARD  
DULUTH AIR NATIONAL GUARD BASE  
DULUTH, MINNESOTA**

**JUNE 1996**

*Prepared For*  
**HQ ANG/CEVR  
ANDREWS AFB, MARYLAND**

*Prepared By*  
**Operational Technologies Corporation  
4100 N.W. Loop 410, Suite 230  
San Antonio, Texas 78229-4253  
(210) 731-0000**

**APPENDIX M**

**LABORATORY REPORTS AND CHAIN-OF-CUSTODY FORMS**



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505209-05

Operational Tech

SAMPLE ID: 026.002BH 6.5-7

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	86	23	120
2-Fluorobiphenyl	1600 ug/Kg	85	30	115
Terphenyl-d14	1600 ug/Kg	91	18	137
Phenol-d5	2500 ug/Kg	61	24	113
2-Fluorophenol	2500 ug/Kg	51	25	121
2,4,6-Tribromophenol	2500 ug/Kg	90	19	122

ANALYZED BY: LH

DATE/TIME: 05/16/95 17:55:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/k.i/k950509.b/k129s13.d  
Report Date: 12-May-1995 10:50

Page 1

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129s13.d  
Lab Smp Id: 9505209-05A-8240S/1X  
Inj Date : 09-MAY-1995 18:17  
Operator : HLW  
Smp Info : 9505209-05A-8240S/1X  
Misc Info : K129S1/K129B02/K129CS2  
Comment :  
Method : /chem/k.i/k950509.b/kvoclp.s.m  
Meth Date : 12-May-1995 10:45 hillery  
Cal Date : 09-MAY-1995 11:08  
Als bottle: 26  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i  
Quant Type: ISTD  
Cal File: k129cs2.d  
Compound Sublist: normal.sub

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.122	2.123	(1.000)	86515	250	
* 31 1,4-Difluorobenzene	114.00	2.804	2.789	(1.000)	515085	250	
* 51 Chlorobenzene-d5	117.00	6.759	6.759	(1.000)	378938	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.380	2.365	(1.121)	36023	240	47
\$ 40 Toluene-d8	98.00	4.546	4.532	(0.673)	572185	240	49
\$ 61 Bromofluorobenzene	95.00	8.880	8.865	(1.314)	200077	240	48

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129s13.d  
Lab Smp Id: 9505209-05A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Misc Info: K129S1/K129B02/K129CS2

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	86515	0.05
31 1,4-Difluorobenzene	552052	276026	1104104	515085	-6.70
51 Chlorobenzene-d5	389031	194516	778062	378938	-2.59

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.03
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.80	0.52
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	-0.01

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950509.b/k129s13.d

Date : 09-MAY-1995 18:17

Client ID:

Sample Info: 9505209-05A-82405/1X

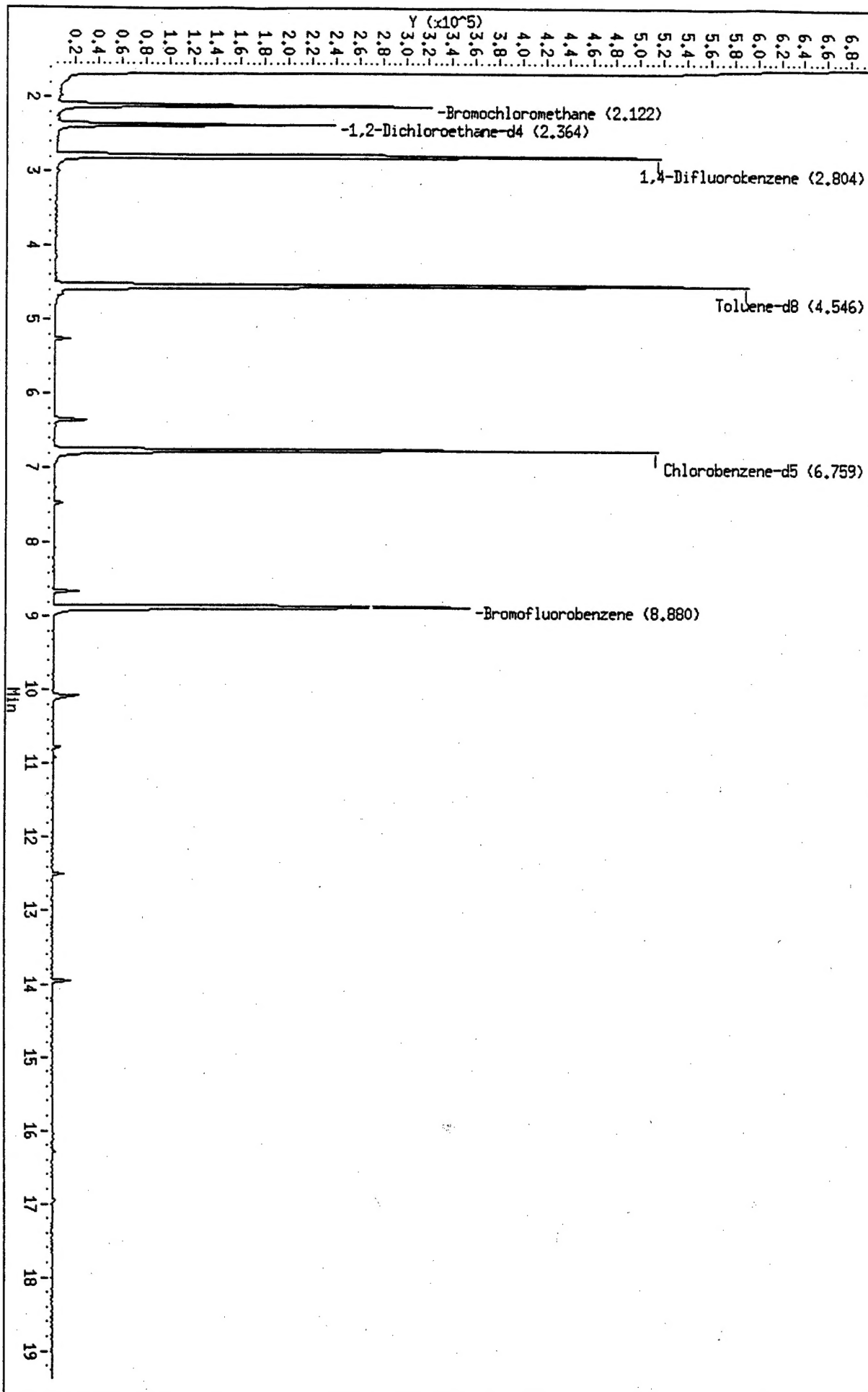
Column phase: 30m.hp5ms,0.25u df

Instrument: k.1

Operator: HLM

Column diameter: 0.25

/chem/k.1/k950509.b/k129s13.d





Data File: /chem/h.i/h950516.b/h136s08.d  
Report Date: 17-May-1995 11:50

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136s08.d

Lab Smp Id:

Inj Date : 16-MAY-1995 17:55

Operator : LH

Inst ID: h.i

Smp Info : 9505209-05B-8270S/1X

Misc Info : E132S1/H132B02/H136IC1

Comment :

Method : /chem/h.i/h950516.b/hclps.m

Meth Date : 16-May-1995 16:57 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 12

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
=====	=====	==	=====	=====	=====	=====	=====	
* 11 1,4-Dichlorobenzene-d4	152.00	4.441	4.454	(1.000)	120627	40		
* 32 Naphthalene-d8	136.00	5.626	5.651	(1.000)	430687	40		
* 48 Acenaphthene-d10	164.00	7.404	7.417	(1.000)	219556	40		
* 65 Phenanthrene-d10	188.00	8.897	8.922	(1.000)	313569	40	(M)	
* 76 Chrysene-d12	240.00	11.753	11.777	(1.000)	196885	40		
* 83 Perylene-d12	264.00	13.969	13.993	(1.000)	114393	40		
\$ 23 Nitrobenzene-d5	82.00	4.951	4.964	(0.880)	289271	82	1400	
\$ 41 2-Fluorobiphenyl	172.00	6.716	6.729	(0.907)	592577	82	1400	
\$ 72 Terphenyl-d14	244.00	10.532	10.545	(0.896)	479801	88	1500	
\$ 4 Phenol-d5	99.00	4.145	4.158	(0.933)	400716	91	1500	
\$ 3 2-Fluorophenol	112.00	3.458	3.423	(0.779)	310530	76	1300	
\$ 61 2,4,6-Tribromophenol	329.70	8.221	8.234	(0.919)	171119	140	2200	

QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136s08.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclps.m  
Misc Info: E132S1/H132B02/H136IC1

Calibration Date: 05/16/95  
Calibration Time: 1152  
Level: LOW  
Sample Type: SOIL

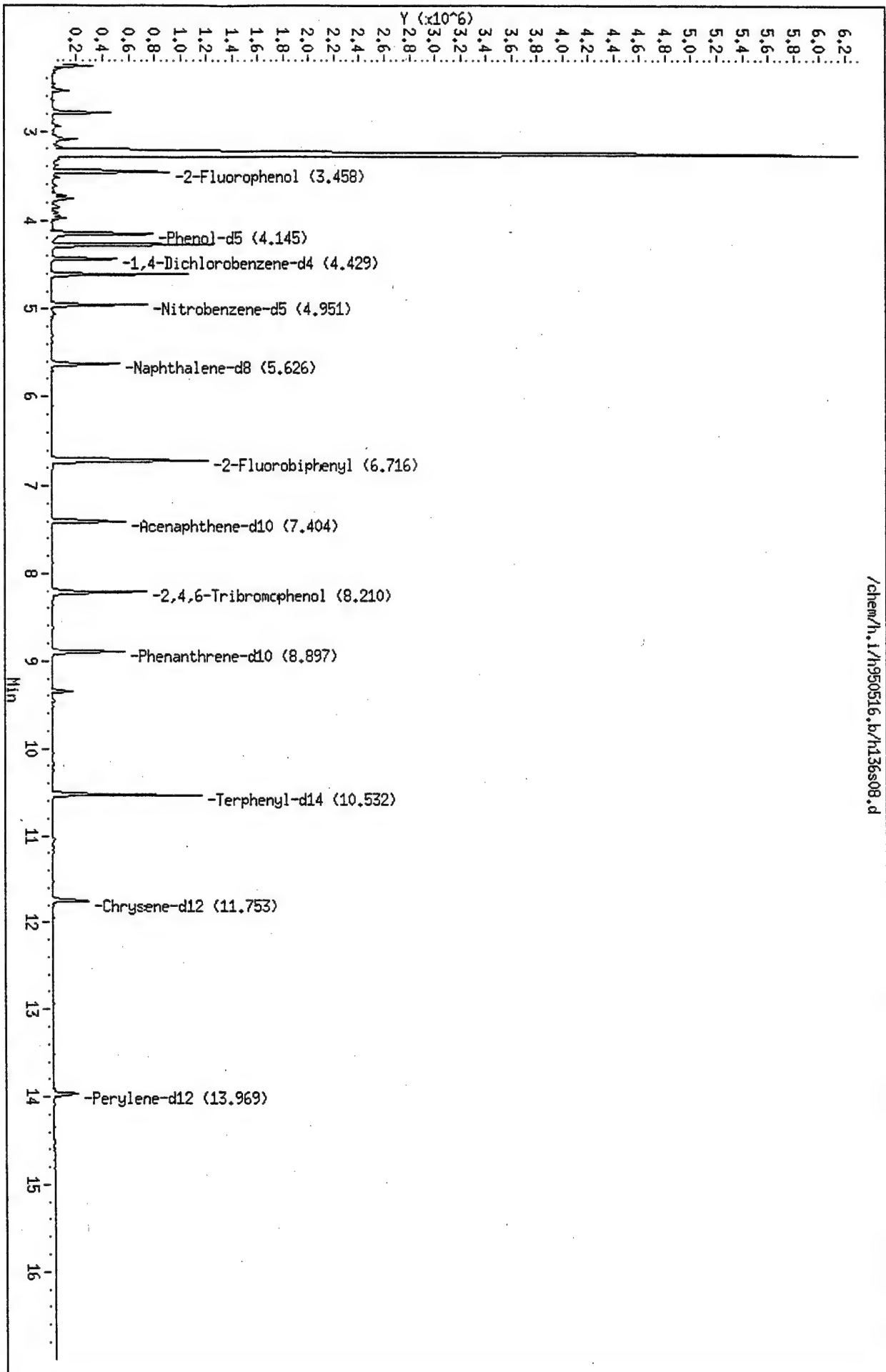
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	120627	16.91
32 Naphthalene-d8	348029	174014	696058	430687	23.75
48 Acenaphthene-d10	171424	85712	342848	219556	28.08
65 Phenanthrene-d10	222794	111397	445588	313569	40.74
76 Chrysene-d12	137788	68894	275576	196885	42.89
83 Perylene-d12	83290	41645	166580	114393	37.34

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.44	-0.29
32 Naphthalene-d8	5.65	5.15	6.15	5.63	-0.44
48 Acenaphthene-d10	7.42	6.92	7.92	7.40	-0.17
65 Phenanthrene-d10	8.92	8.42	9.42	8.90	-0.28
76 Chrysene-d12	11.78	11.28	12.28	11.75	-0.21
83 Perylene-d12	13.99	13.49	14.49	13.97	-0.18

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h136s08.d  
Date : 16-MAY-1995 17:55  
Client ID:  
Sample Info: 9505209-05B-B2705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505209-06

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026.002-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/04/95 15:15:00  
DATE RECEIVED: 05/05/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 05/17/95	ND	0.004	mg/L
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 05/17/95	ND	0.01	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: MM Date: 05/08/95	05/08/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: MM Date: 05/08/95	05/08/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/09/95	ND	0.004	mg/L

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505209-06

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026.002-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/04/95 15:15:00  
DATE RECEIVED: 05/05/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
2-Butanone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
2-Chloroethylvinylether	ND	10	ug/L
Chloroform	5	5	ug/L
Chloromethane	ND	10	ug/L
Dibromochloromethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
total-1,2-Dichloroethene	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
2-Hexanone	ND	10	ug/L
Methylene Chloride	ND	5	ug/L
4-Methyl-2-Pentanone	ND	10	ug/L
Styrene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Toluene	ND	5	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Trichlorofluoromethane	ND	5	ug/L
Vinyl Acetate	ND	10	ug/L
Vinyl Chloride	ND	10	ug/L
Xylenes (total)	ND	5	ug/L

METHOD: 8240, Volatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505209-06

Operational Tech

SAMPLE ID: 026.002-RB

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/L	98	76	114
Toluene-d8	50 ug/L	102	88	110
4-Bromofluorobenzene	50 ug/L	98	86	115

ANALYZED BY: JC

DATE/TIME: 05/08/95 17:34:00

METHOD: 8240, Volatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS: \*SP\* for Target Compound List

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505209-06

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026.002-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/04/95 15:15:00  
DATE RECEIVED: 05/05/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	25	ug/L
Benzo(g,h,i)Perylene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	8	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505209-06

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 026.002-RB

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505209-06

Operational Tech

SAMPLE ID: 026.002-RB

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	82	35	114
2-Fluorobiphenyl	50 ug/L	89	43	116
Terphenyl-d14	50 ug/L	75	33	141
Phenol-d5	75 ug/L	54	10	110
2-Fluorophenol	75 ug/L	54	21	110
2,4,6-Tribromophenol	75 ug/L	106	10	123

ANALYZED BY: LH

DATE/TIME: 05/16/95 17:30:00

EXTRACTED BY: RN

DATE/TIME: 05/09/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS: \*SP\* for Target Compound List

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

SPL Labs

Volatiles by 624/8240  
ata file : /chem/1.i/1950508.b/l128s13.d  
ab Smp Id:  
nj Date : 08-MAY-1995 17:34  
perator : JC Inst ID: 1.i  
mp Info : 9505209-06A-8240W/1X  
isc Info : L128W1/L128B01/L128CW1  
omment :  
ethod : /chem/1.i/1950508.b/lvoclpw.m  
eth Date : 09-May-1995 08:35 jimmy Quant Type: ISTD  
al Date : 08-MAY-1995 09:08 Cal File: l128cw1.d  
ls bottle: 20  
il Factor: 1.000  
tegrator: HP RTE Compound Sublist: normal.sub  
arget Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ug/L)
13 Methylene Chloride	84.00	3.266	3.239	(0.622)	8745	23	4 (a)
24 Chloroform	83.00	5.263	5.245	(1.002)	19407	24	5
23 Bromochloromethane	128.00	5.254	5.227	(1.000)	61816	250	
32 1,4-Difluorobenzene	114.00	6.956	6.938	(1.000)	322382	250	
50 Chlorobenzene-d5	117.00	11.119	11.110	(1.000)	263229	250	
26 1,2-Dichloroethane-d4	102.00	6.020	6.002	(1.146)	24658	240	49
43 Toluene-d8	98.00	9.176	9.167	(0.825)	354763	260	51
61 Bromofluorobenzene	95.00	12.795	12.786	(1.151)	132059	240	49

Flag Legend

- Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Data File ID: l128s13.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950508.b/lvoclpw.m  
Misc Info: L128W1/L128B01/L128CW1

Calibration Date: 05/08/95  
Calibration Time: 0908

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	60624	30312	121248	61816	1.97
32 1,4-Difluorobenzene	320419	160210	640838	322382	0.61
50 Chlorobenzene-d5	260163	130082	520326	263229	1.18

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.23	4.73	5.73	5.25	0.51
32 1,4-Difluorobenzene	6.94	6.44	7.44	6.96	0.26
50 Chlorobenzene-d5	11.11	10.61	11.61	11.12	0.08

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950508.b/1128s13.d  
Date : 08-MAY-1995 17:34

Client ID:

Sample Info: 9505209-06A-8240M/1X

Purge Volume: 5.0

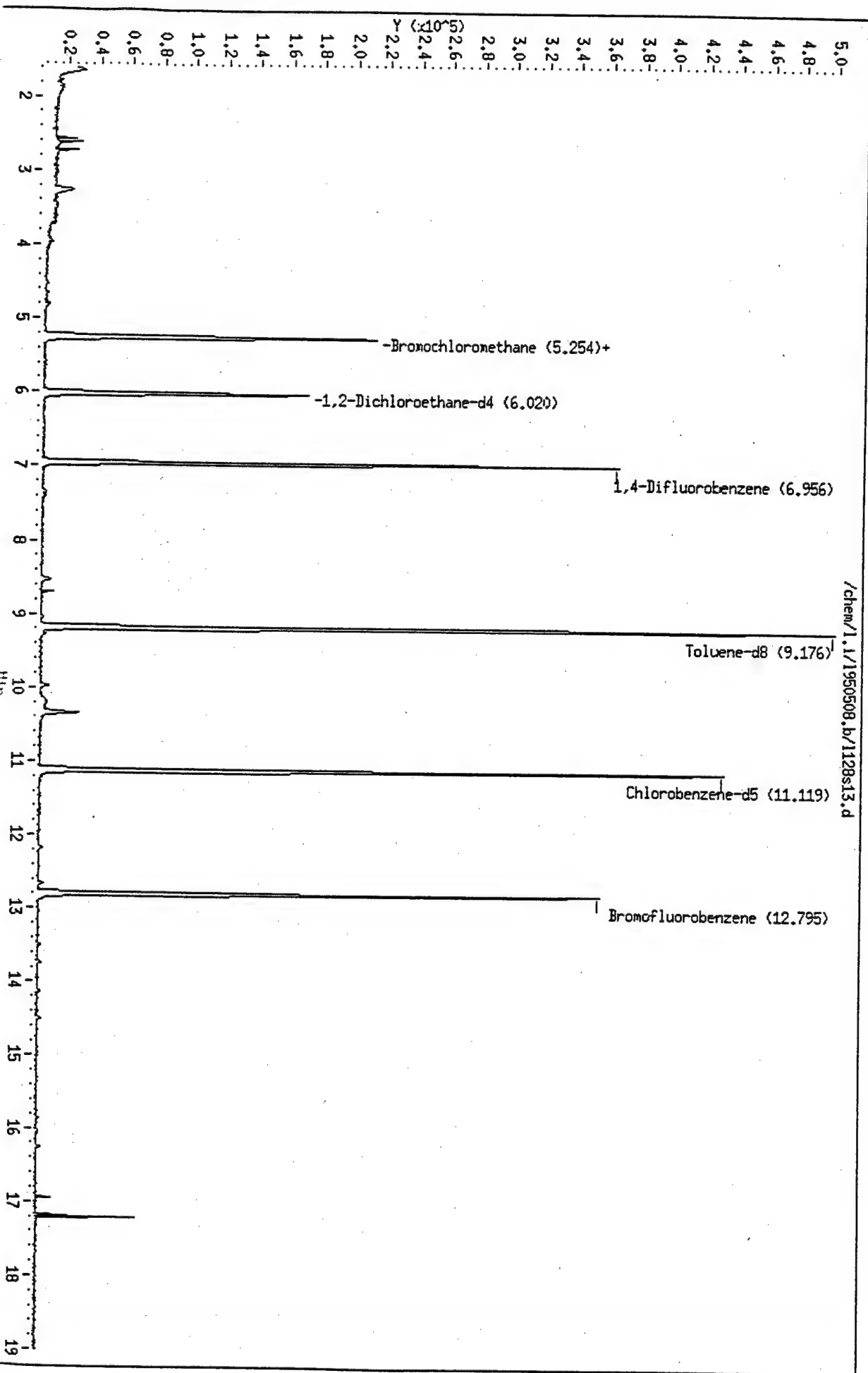
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

Page 4



Data File: /chem/1.i/1950508.b/1128s13.d

Page 5

Date : 08-MAY-1995 17:34

Client ID:

Instrument: 1.i

Sample Info: 9505209-06A-8240W/1X

Purge Volume: 5.0

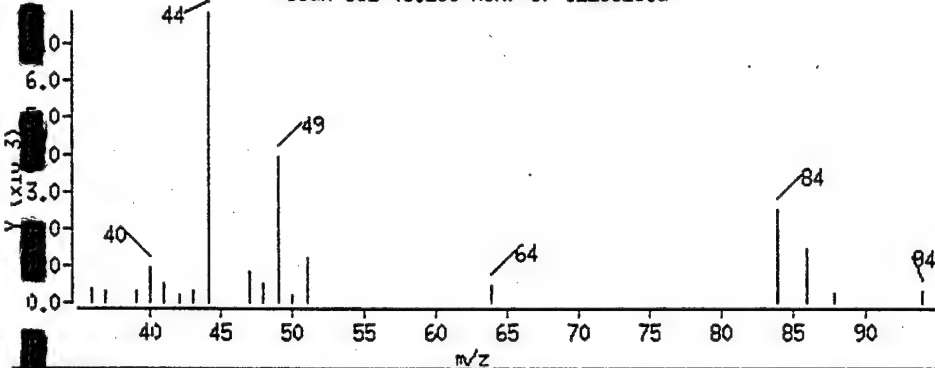
Operator: JC

Column phase: 30m,hp5ms,0.25u df

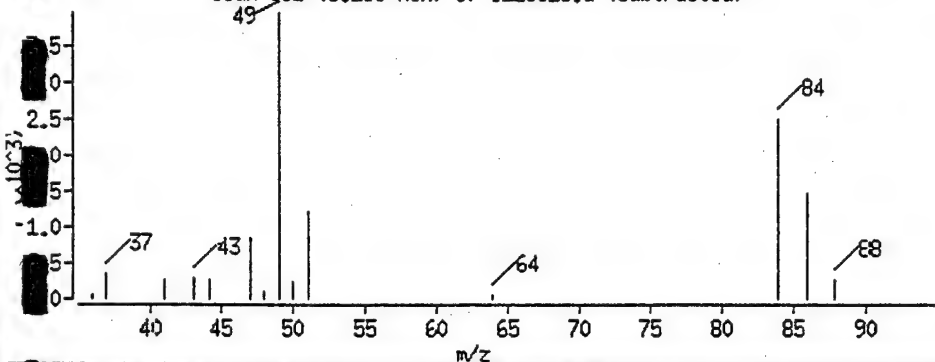
Column diameter: 0.25

13 Methylene Chloride

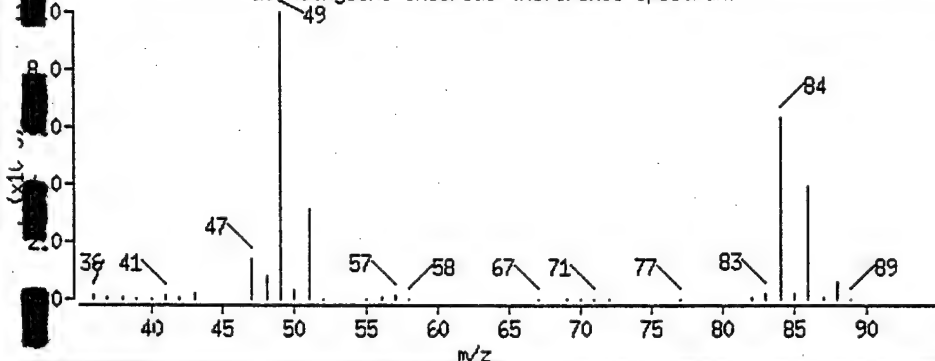
Scan 362 (3.266 min) of 1128s13.d



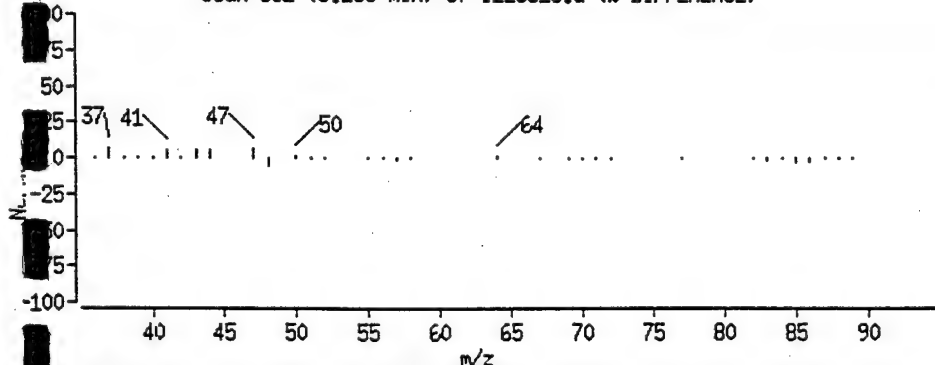
Scan 362 (3.266 min) of 1128s13.d (Subtracted)



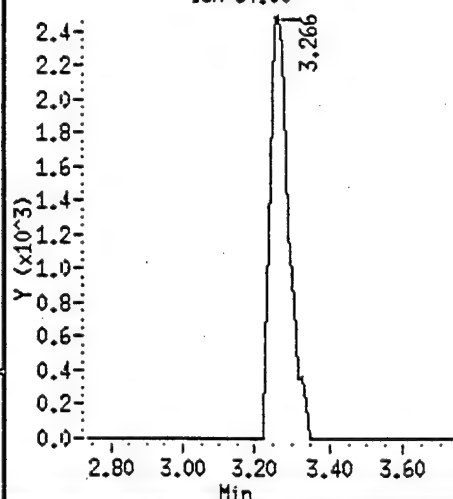
13 Methylene Chloride (Reference Spectrum)



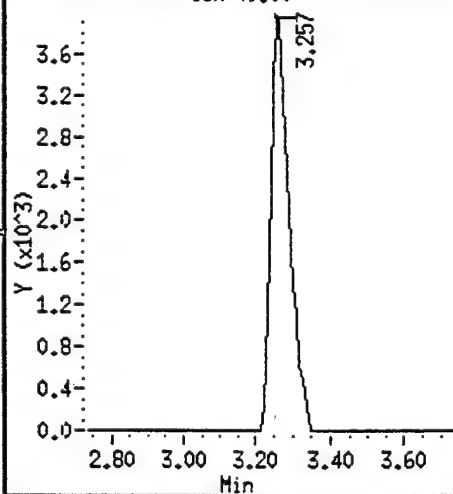
Scan 362 (3.266 min) of 1128s13.d (% DIFFERENCE)



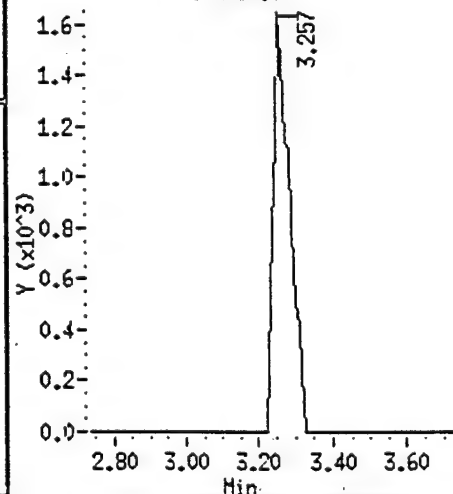
Ion 84.00



Ion 49.00



Ion 86.00



Data File: /chem/1.1/1950508.b/1128s13.d

Page 6

Date : 08-MAY-1995 17:34

Client ID:

Instrument: 1.1

Sample Info: 9505209-06A-8240W/1X

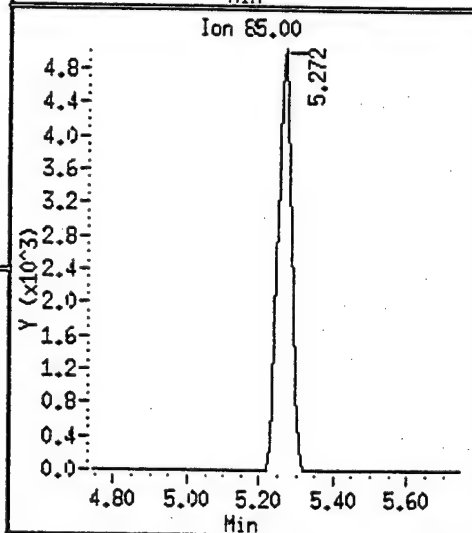
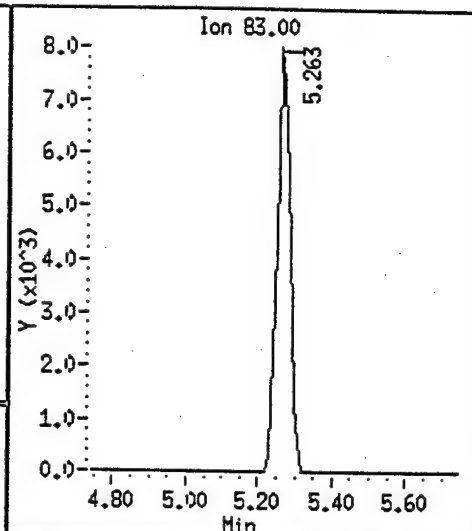
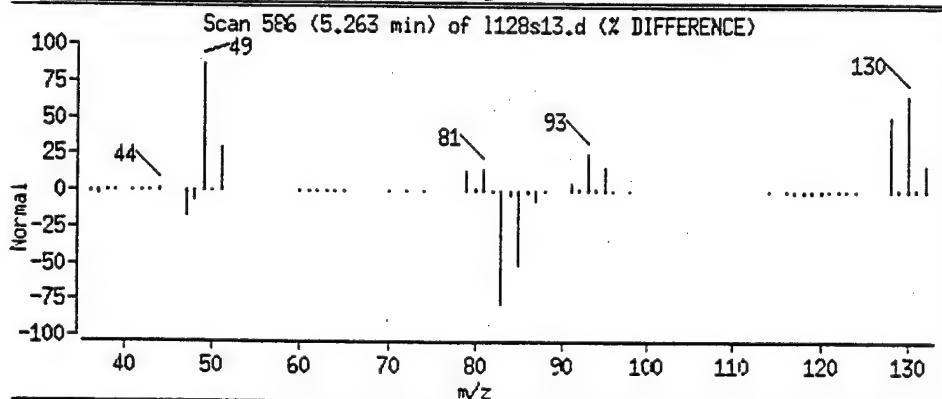
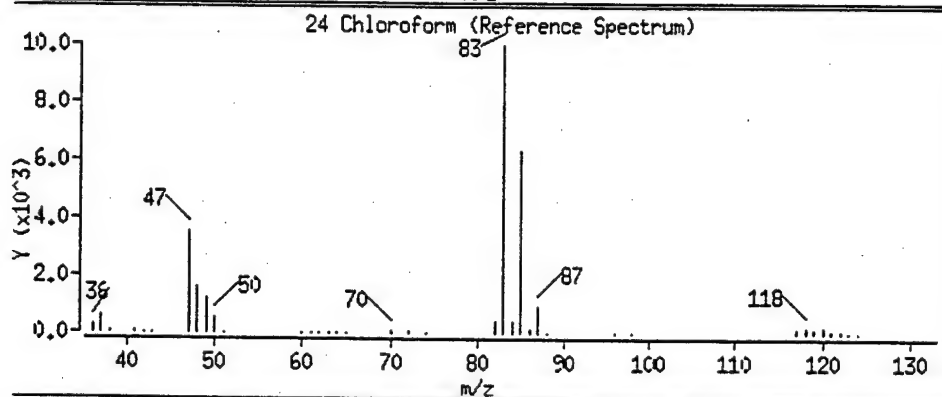
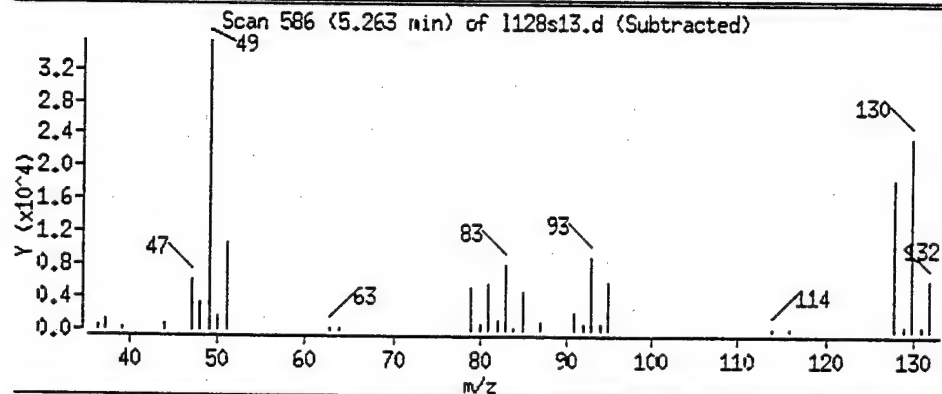
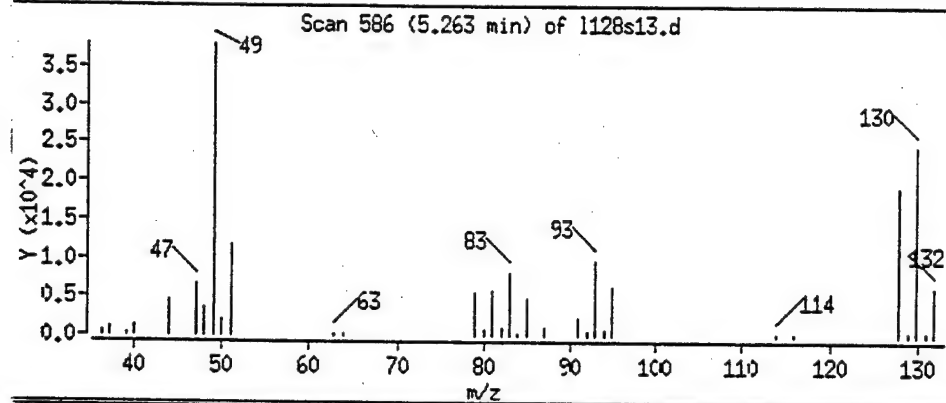
Purge Volume: 5.0

Operator: JC

Column phase: 30m,hp5ms,0.25u df

Column diameter: 0.25

24 Chloroform



Data File: /chem/h.i/h950516.b/h136s07.d  
Report Date: 17-May-1995 11:50

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136s07.d

Lab Smp Id:

Inj Date : 16-MAY-1995 17:30

Operator : LH

Inst ID: h.i

Smp Info : 9505209-06B-8270W/1X

Misc Info : E129C1/J129B01/H136IC1

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 21:39 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 11

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
=====	=====	==	=====	=====	=====	=====	=====
36 4-Chloro-3-methylphenol	107.00	6.222	6.232	(1.103)	40824	15	8
* 11 1,4-Dichlorobenzene-d4	152.00	4.444	4.454	(1.000)	110366	40	
* 32 Naphthalene-d8	136.00	5.641	5.651	(1.000)	364733	40	
* 48 Acenaphthene-d10	164.00	7.407	7.417	(1.000)	157541	40	
* 65 Phenanthrene-d10	188.00	8.900	8.922	(1.000)	216238	40	
* 76 Chrysene-d12	240.00	11.756	11.777	(1.000)	137070	40	
* 83 Perylene-d12	264.00	13.972	13.993	(1.000)	74425	40	
\$ 23 Nitrobenzene-d5	82.00	4.966	4.964	(0.880)	245267	82	41
\$ 41 2-Fluorobiphenyl	172.00	6.720	6.729	(0.907)	461671	89	44
\$ 72 Terphenyl-d14	244.00	10.536	10.545	(0.896)	285692	75	38
\$ 4 Phenol-d5	99.00	4.160	4.158	(0.936)	325592	81	40
\$ 3 2-Fluorophenol	112.00	3.425	3.423	(0.771)	303775	81	41
\$ 61 2,4,6-Tribromophenol	329.70	8.225	8.234	(0.924)	138364	160	79

Date: 16-MAY-1995 17:30

Client ID:

Instrument: h.i

Sample Info: 9505209-06B-8270W/1X

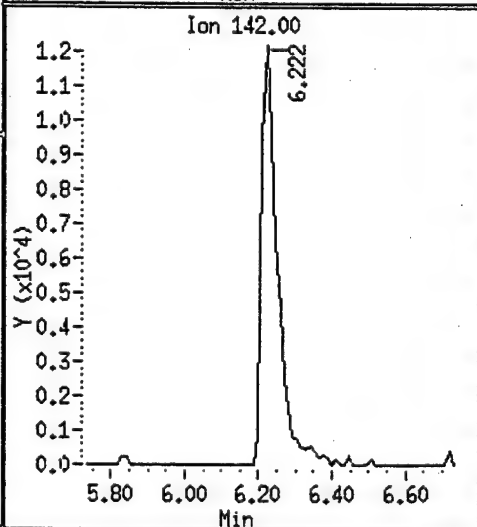
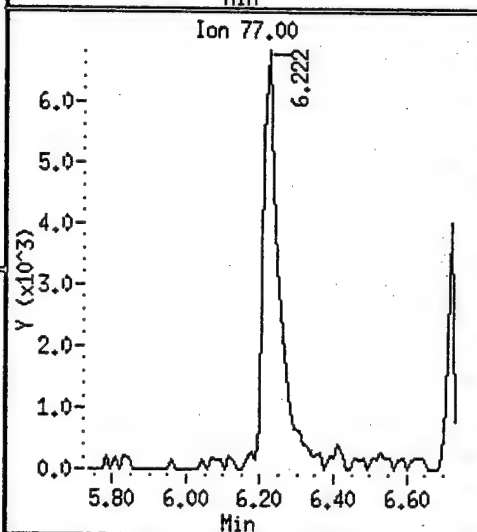
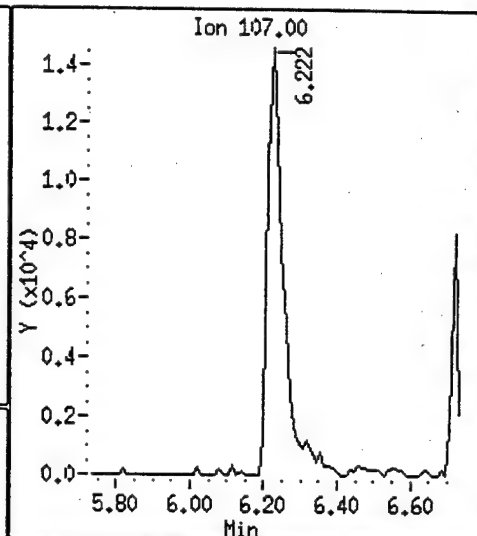
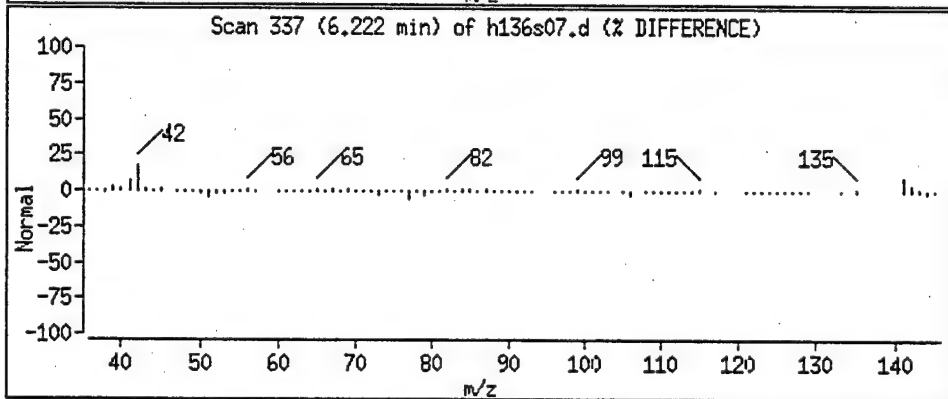
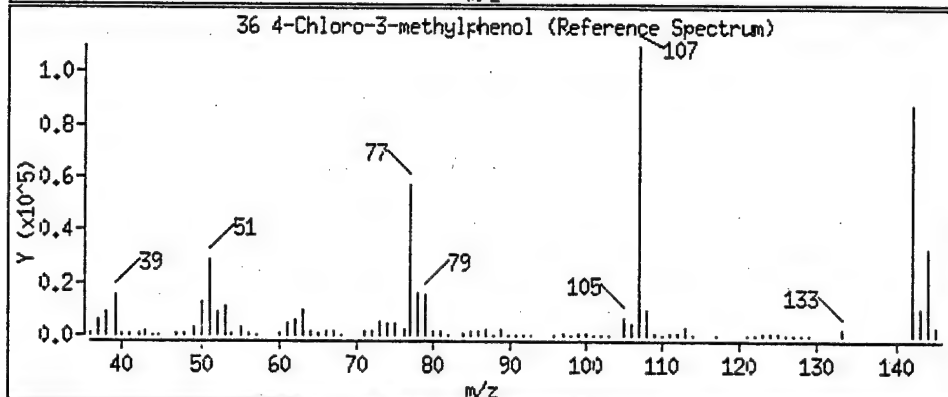
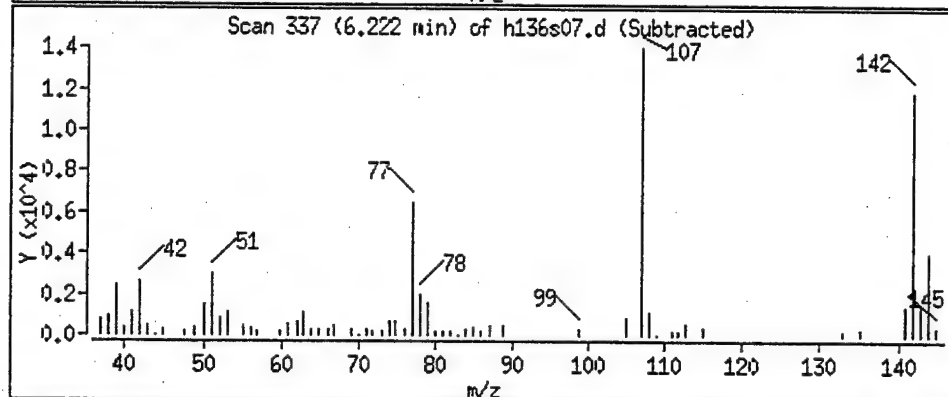
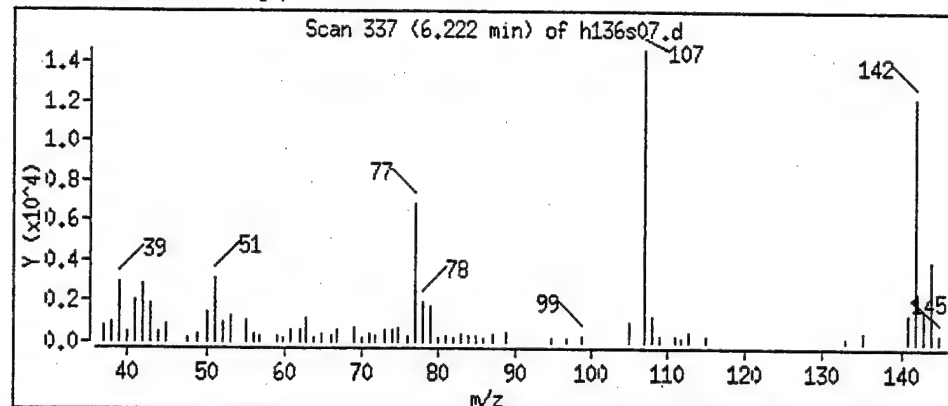
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

## 36 4-Chloro-3-methylphenol





SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136s07.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH

Calibration Date: 05/16/95  
Calibration Time: 1152

Level: LOW  
Sample Type: WATER

Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: E129C1/J129B01/H136IC1

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	110366	6.96
32 Naphthalene-d8	348029	174014	696058	364733	4.80
48 Acenaphthene-d10	171424	85712	342848	157541	-8.10
65 Phenanthrene-d10	222794	111397	445588	216238	-2.94
76 Chrysene-d12	137788	68894	275576	137070	-0.52
83 Perylene-d12	83290	41645	166580	74425	-10.64

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.44	-0.21
32 Naphthalene-d8	5.65	5.15	6.15	5.64	-0.17
48 Acenaphthene-d10	7.42	6.92	7.92	7.41	-0.13
65 Phenanthrene-d10	8.92	8.42	9.42	8.90	-0.24
76 Chrysene-d12	11.78	11.28	12.28	11.76	-0.18
83 Perylene-d12	13.99	13.49	14.49	13.97	-0.15

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.i/h950516.b/h136s07.d  
Date : 16-MY-1995 17:30

Client ID:

Sample Info: 9505209-06B-8270M/1X

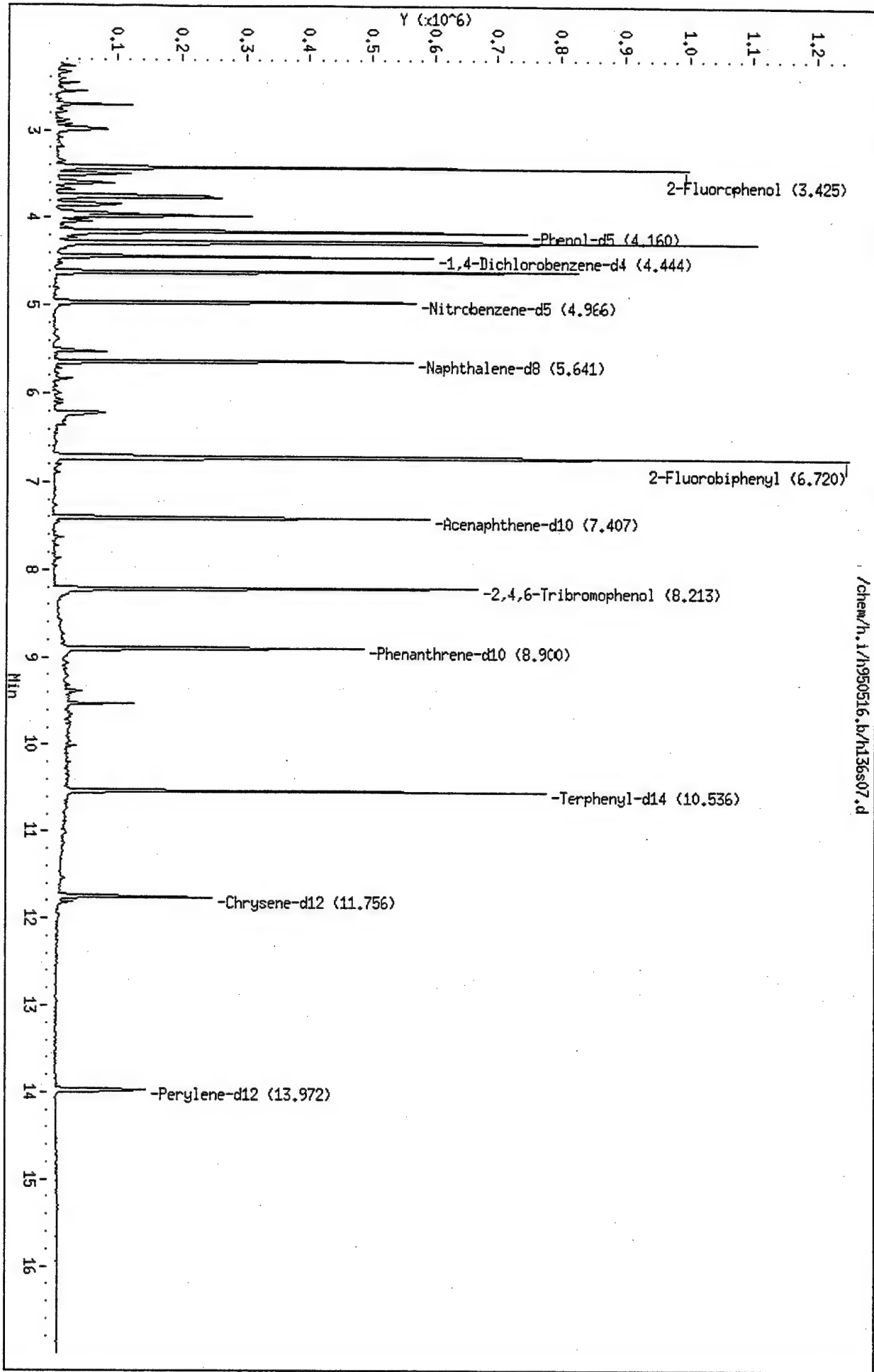
Volume Injected (uL): 2.0

Column phase:

Instrument: h.i

Operator: LH

Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505209-07

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth  
SITE: IRP Site 26  
SAMPLED BY: Provided by SPL  
SAMPLE ID: Trip Blank

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 04/26/95  
DATE RECEIVED: 05/05/95

# ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
2-Butanone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
2-Chloroethylvinylether	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
Dibromochloromethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
total-1,2-Dichloroethene	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
2-Hexanone	ND	10	ug/L
Methylene Chloride	ND	5	ug/L
4-Methyl-2-Pentanone	ND	10	ug/L
Styrene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Toluene	ND	5	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Trichlorofluoromethane	ND	5	ug/L
Vinyl Acetate	ND	10	ug/L
Vinyl Chloride	ND	10	ug/L
Xylenes (total)	ND	5	ug/L

METHOD: 8240, Volatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505209-07

Operational Tech

SAMPLE ID: Trip Blank

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/L	100	76	114
Toluene-d8	50 ug/L	102	88	110
4-Bromofluorobenzene	50 ug/L	100	86	115

ANALYZED BY: JC

DATE/TIME: 05/08/95 16:39:00

METHOD: 8240, Volatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/1.i/1950508.b/1128s11.d  
Report Date: 08-May-1995 17:00

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950508.b/1128s11.d

Lab Smp Id:

Inj Date : 08-MAY-95 16:39

Operator : JC

Inst ID: 1.i

Smp Info : 9505209-07A-8240W/1X

Misc Info : L128W1/L128B01/L128CW1

Comment :

Method : /chem/1.i/1950508.b/lvoclpw.m

Meth Date : 08-May-1995 16:39 jimmy

Quant Type: ISTD

Cal Date : 08-MAY-1995 09:08

Cal File: 1128cw1.d

Ass bottle: 18

Cal Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	---	--	-----	-----	-----	-----	-----	-----
23 Bromochloromethane	128.00	5.242	5.227	(1.000)	60040	250		
* 2 1,4-Difluorobenzene	114.00	6.944	6.938	(1.000)	321547	250		
0 Chlorobenzene-d5	117.00	11.125	11.110	(1.000)	264769	250		
26 1,2-Dichloroethane-d4	102.00	6.008	6.002	(1.146)	24431	250	50	
\$ 43 Toluene-d8	98.00	9.173	9.167	(0.825)	358056	260	51	
\$ 1 Bromofluorobenzene	95.00	12.792	12.786	(1.150)	135463	250	50	

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: l128s11.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950508.b/lvoclpw.m  
Misc Info: L128W1/L128B01/L128CW1

Calibration Date: 05/08/95  
Calibration Time: 0908

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	60624	30312	121248	60040	-0.96
32 1,4-Difluorobenzene	320419	160210	640838	321547	0.35
50 Chlorobenzene-d5	260163	130082	520326	264769	1.77

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.23	4.73	5.73	5.24	0.28
32 1,4-Difluorobenzene	6.94	6.44	7.44	6.94	0.08
50 Chlorobenzene-d5	11.11	10.61	11.61	11.12	0.13

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950508.b/1128s11.d

Date : 08-MAY-95 16:39

Client ID:

Sample Info: 9505209-07R-8240M/1X

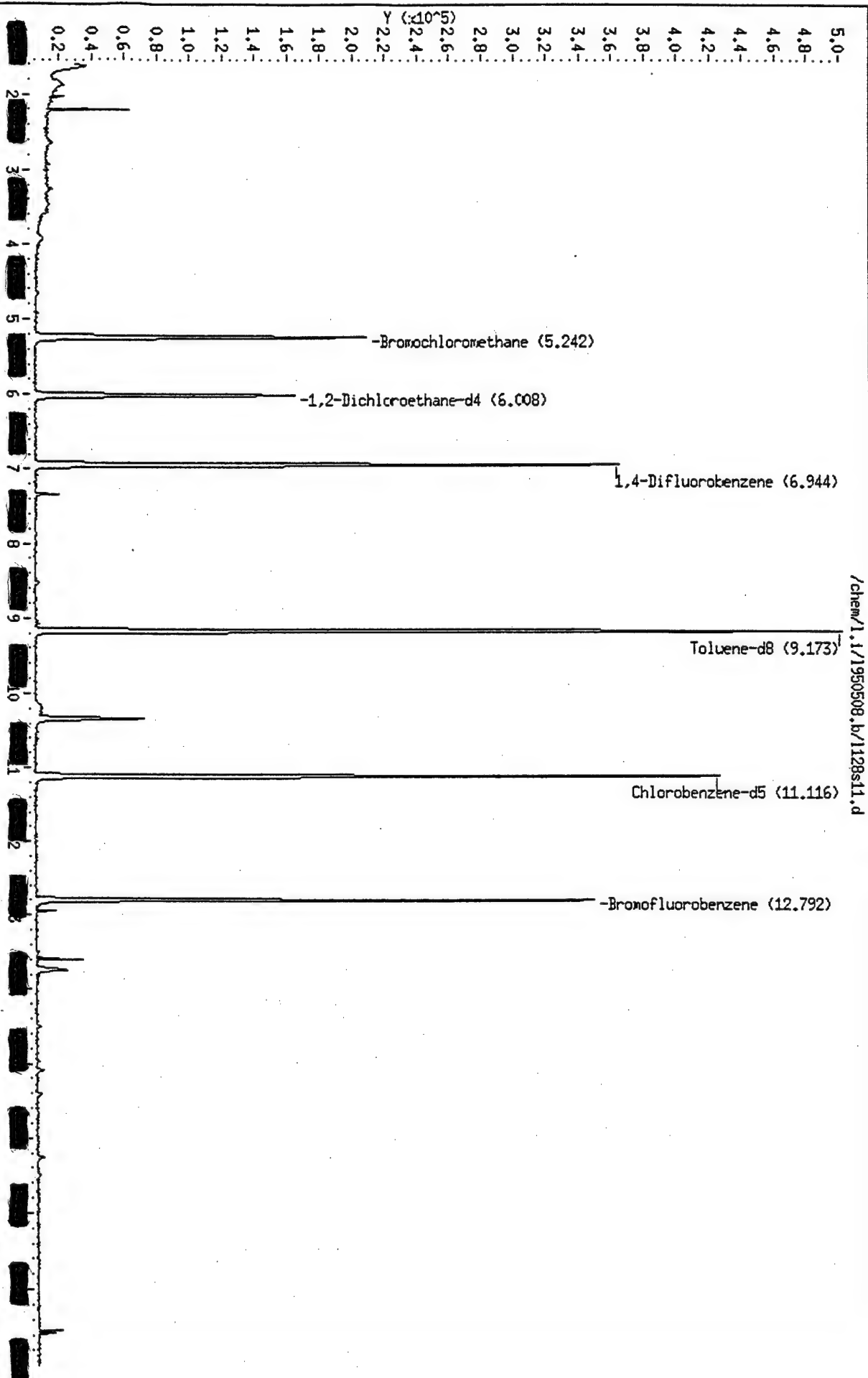
Purge Volume: 5.0

Column phase: 30m,hp5ms,0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 95 - 05 - 209

Approved for release by:

M. Scott Sample  
M. Scott Sample, Laboratory Director

Date: 5/30/95

Karen Satterfield  
Karen Satterfield, Project Manager

Date: 5/30/95



*QUALITY CONTROL*  
*DOCUMENTATION*

3B  
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPL

Case No.: 505164

SAS No.: \_\_\_\_\_

SDG NO.: 505209

Matrix Spike - EPA Sample No.: 026-001BB 9-9.5

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMIT REC.
1,1-Dichloroethene	50.0	0	44	88	59-172
Trichloroethene	50.0	0	44	88	62-137
Benzene	50.0	0	47	94	66-142
Toluene	50.0	0	43	86	59-139
Chlorobenzene	50.0	0	41	82	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
1,1-Dichloroethene	50.0	46	92	4	22	59-172
Trichloroethene	50.0	46	92	4	24	62-137
Benzene	50.0	49	98	4	21	66-142
Toluene	50.0	45	90	5	21	59-139
Chlorobenzene	50.0	43	86	5	21	60-133

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

FORM III VOA - 2

  
Idelis Williams, QC Officer

3A

## WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPLCase No.: 504362

SAS No.: \_\_\_\_\_

SDG NO.: 505209Matrix Spike - EPA Sample No.: SFA - Q2

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC.
1,1-Dichloroethene	50.0	0	46	92	61-145
Trichloroethene	50.0	0	45	90	71-120
Benzene	50.0	0	48	96	76-127
Toluene	50.0	0	50	100	76-125
Chlorobenzene	50.0	0	50	100	75-130

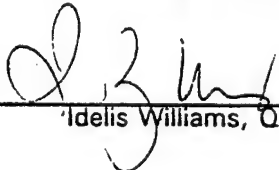
COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
1,1-Dichloroethene	50.0	46	92	0	14	61-145
Trichloroethene	50.0	45	90	0	14	71-120
Benzene	50.0	47	94	2	11	76-127
Toluene	50.0	49	98	2	13	76-125
Chlorobenzene	50.0	49	98	2	13	75-130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 5 outside limitsSpike Recovery: 0 out of 10 outside limits

FORM III VOA - 1

  
 Idelis Williams, Q C Officer

## SPL Blank QC Report

page 1

Matrix: Soil  
Sample ID: BLANK  
Batch: K950509094856

Reported on: 05/16/95 12:35  
Analyzed on: 05/09/95 12:29  
Analyst: HLW

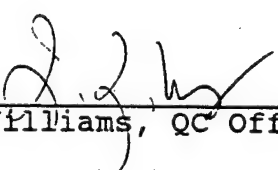
METHOD 8240S

K129B02

C o m p o u n d	- Result	Detection Limit	Units
1,2-Dichloroethene (total)	ND	5	ug/Kg
Xylene (Total)	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Chloroethane	ND	10	ug/Kg
Bromomethane	ND	10	ug/Kg
Acetone	ND	100	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
Methylene Chloride	ND	5	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Chloroform	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
Benzene	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 2

Matrix: Soil  
Sample ID: BLANK  
Batch: K950509094856

Reported on: 05/16/95 12:35  
Analyzed on: 05/09/95 12:29  
Analyst: HLW

METHOD 8240S

K129B02

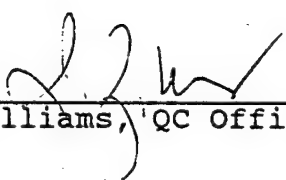
Compound	Result	Detection Limit	Units
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg

Surrogate	Result	QC Criteria	Units
1,2-Dichloroethane-d4	97	70-121	% Recovery
Toluene-d8	98	84-138	% Recovery
Bromofluorobenzene	97	59-113	% Recovery

Samples in Batch 9505209-01 9505209-02 9505209-03 9505209-04  
9505209-05

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129b02.d  
Lab Smp Id: BLANK-8240S/1X  
Inj Date : 09-MAY-1995 12:29  
Operator : HLW  
Smp Info : BLANK-8240S/1X  
Misc Info : K129S1//K129CS2  
Comment :  
Method : /chem/k.i/k950509.b/kvoclp.s.m  
Meth Date : 09-May-1995 11:38 hillery  
Cal Date : 09-MAY-1995 11:08  
Als bottle: 5  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i

Quant Type: ISTD  
Cal File: k129cs2.d

Compound Sublist: all.sub

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.120	2.123	(1.000)	95890	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.378	2.365	(1.121)	41030	240	48
* 31 1,4-Difluorobenzene	114.00	2.802	2.789	(1.000)	548254	250	
\$ 40 Toluene-d8	98.00	4.545	4.532	(0.673)	622868	240	49
* 51 Chlorobenzene-d5	117.00	6.757	6.759	(1.000)	414533	250	
\$ 61 Bromofluorobenzene	95.00	8.863	8.865	(1.312)	219572	240	48

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129b02.d  
Lab Smp Id: BLANK-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoc1ps.m  
Misc Info: K129S1//K129CS2

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	95890	10.89
31 1,4-Difluorobenzene	1552052	276026	1104104	548254	-0.169
51 Chlorobenzene-d5	1389031	194516	778062	414533	6.56

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.11
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.80	0.46
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950509.b/k129b02.d

Date : 09-MAY-1995 12:29

Client ID:

Sample Info: BLANK-82405/1X

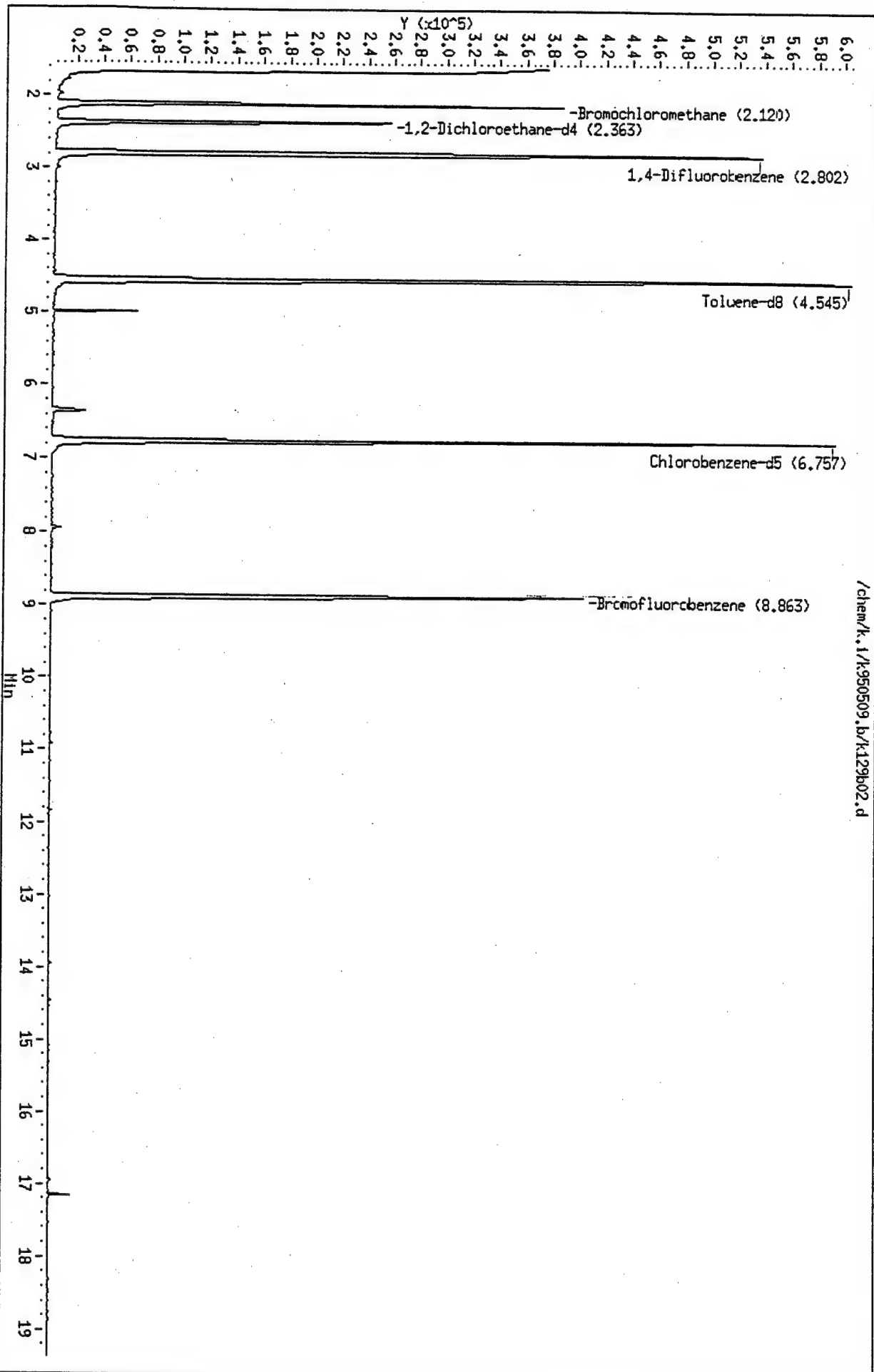
Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1

Operator: HLM

Column diameter: 0.25

/chem/k.1/k950509.b/k129b02.d





## SPL Blank QC Report

page 3

Matrix: Aqueous  
Sample ID: BLANK  
Batch: L950508104642

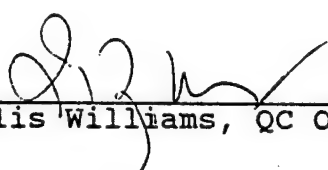
Reported on: 05/16/95 12:35  
Analyzed on: 05/08/95 09:35  
Analyst: JC

METHOD 8240/624 L128B01

Compound	Result	Detection Limit	Units
Chloromethane	ND	10	ug/L
Vinyl Chloride	ND	10	ug/L
Bromomethane	ND	10	ug/L
Chloroethane	ND	10	ug/L
Trichlorofluoromethane	ND	5	ug/L
Acetone	ND	100	ug/L
1,1-Dichloroethene	ND	5	ug/L
Methylene Chloride	ND	5	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene (total)	ND	5	ug/L
Vinyl Acetate	ND	10	ug/L
2-Butanone	ND	20	ug/L
Chloroform	ND	5	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
2-Chloroethylvinylether	ND	10	ug/L
4-Methyl-2-Pentanone	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Toluene	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
2-Hexanone	ND	10	ug/L
Dibromochloromethane	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Xylene (Total)	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Bromoform	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 4

Matrix: Aqueous  
Sample ID: BLANK  
Batch: L950508104642

Reported on: 05/16/95 12:35  
Analyzed on: 05/08/95 09:35  
Analyst: JC

METHOD 8240/624 L128B01

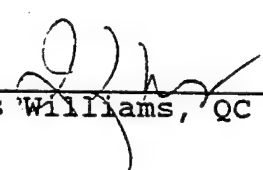
C o m p o u n d	Result	Detection Limit	Units
Styrene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

S u r r o g a t e	Result	QC Criteria	Units
1,2-Dichloroethane-d4	99	76-114	% Recovery
Toluene-d8	103	88-110	% Recovery
Bromofluorobenzene	97	86-115	% Recovery

Samples in Batch 9505209-06 9505209-07

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

Data File: /chem/1.i/1950508.b/l128b01.d  
Report Date: 08-May-1995 09:57

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950508.b/l128b01.d

Lab Smp Id:

Run Date : 08-MAY-1995 09:35

Operator : JC

Inst ID: 1.i

Run Info : BLANK-8240W/1X

Disc Info : L128W1//L128CW1

Comment :

Method : /chem/1.i/1950508.b/lvoclpw.m

Run Date : 08-May-1995 09:30 jimmy

Quant Type: ISTD

Cal Date : 08-MAY-1995 09:08

Cal File: l128cw1.d

Lab bottle: 3

Factor: 1.000

Integrator: HP RTE

Compound Sublist: all.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS					
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN FINAL ( ng) ( ug/L)
23 Bromochloromethane	128.00	5.233	5.227	(1.000)	60720	250	
24 1,2-Dichloroethane-d4	102.00	6.009	6.002	(1.148)	24450	250	49
1,4-Difluorobenzene	114.00	6.936	6.938	(1.000)	322660	250	
Toluene-d8	98.00	9.164	9.167	(0.824)	343807	260	52
50 Chlorobenzene-d5	117.00	11.116	11.110	(1.000)	253617	250	
Bromofluorobenzene	95.00	12.792	12.786	(1.151)	127003	240	49

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

nstrument ID: l.i  
ab File ID: l128b01.d  
ab Smp Id:  
nalysis Type: VOA  
uant Type: ISTD  
perator: JC  
ethod File: /chem/l.i/1950508.b/lvoclpw.m  
isc Info: L128W1//L128CW1

Calibration Date: 05/08/95  
Calibration Time: 0908

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	60624	30312	121248	60720	0.16
32 1,4-Difluorobenzene	320419	160210	640838	322660	0.70
50 Chlorobenzene-d5	260163	130082	520326	253617	-2.52

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.23	4.73	5.73	5.23	0.12
32 1,4-Difluorobenzene	6.94	6.44	7.44	6.94	-0.04
50 Chlorobenzene-d5	11.11	10.61	11.61	11.12	0.06

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950508.b/1128601.d

Date : 08-MAY-95 09:35

Client ID:

Sample Info: BLANK-8240M/1X

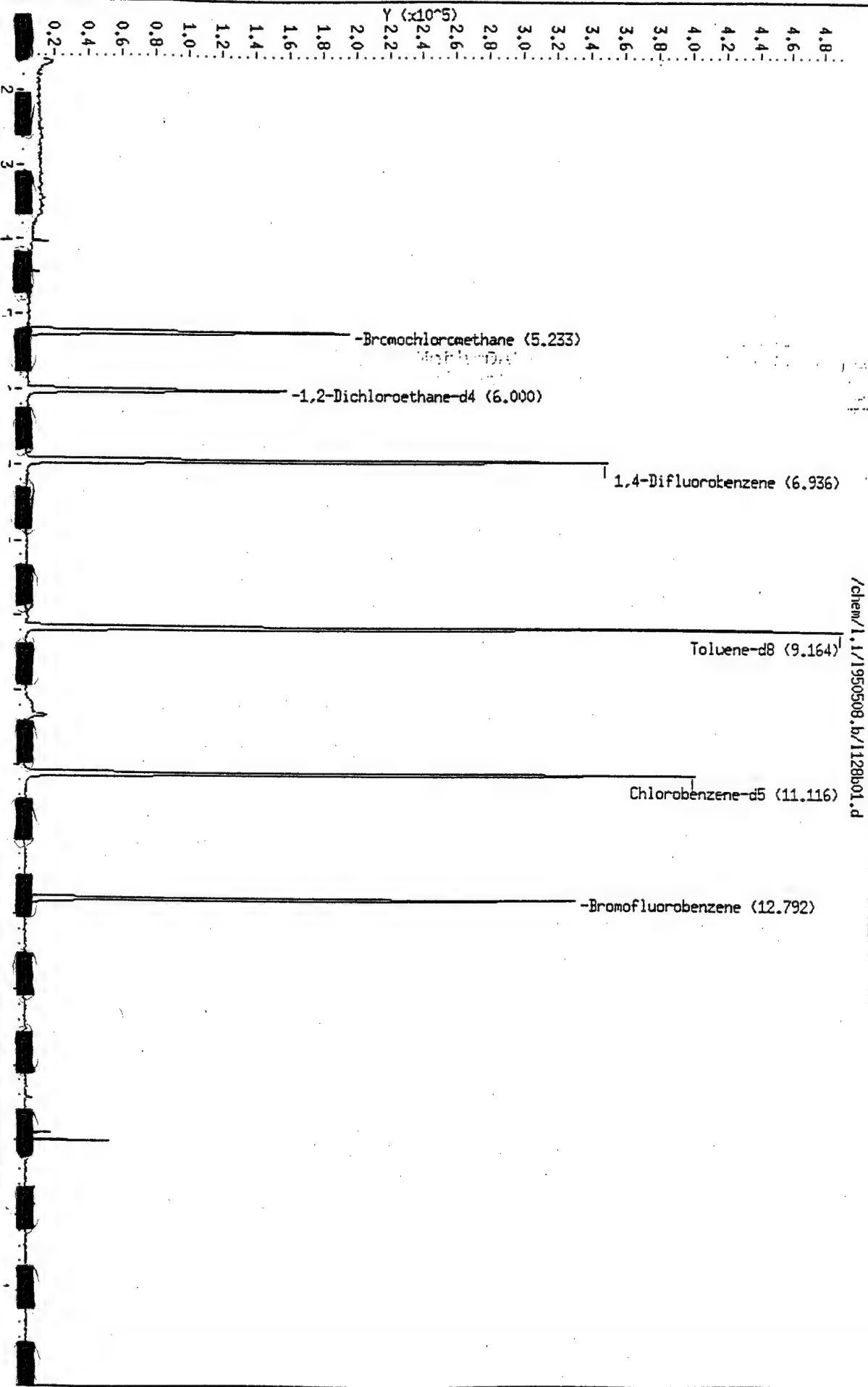
Purge Volume: 5.0

Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

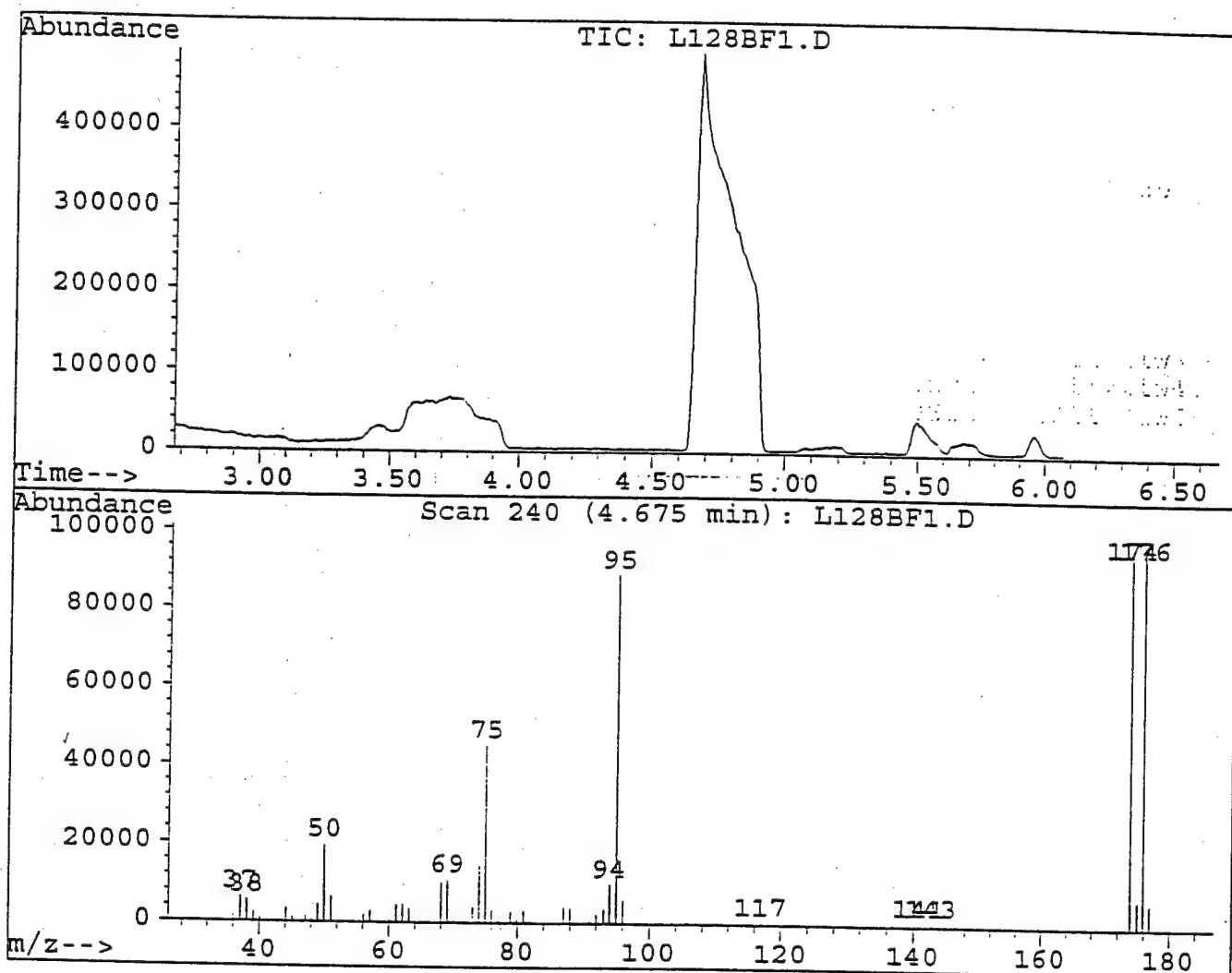


BFB

Data File : C:\HPCHEM\1\DATA\L950508\L128BF1.D  
 Acq On : 8 May 95 8:46 am  
 Sample : 50 NG BFB  
 Misc : PURGING INJECTION

Vial: 1  
 Operator:  
 Inst : 1  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\ENVDEF.M  
 Title :



Peak Apex is scan: 240

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.1	19608	PASS
75	95	30	60	51.0	45272	PASS
95	95	100	100	100.0	88808	PASS
96	95	5	9	6.7	5913	PASS
173	174	0	2	0.0	0	PASS
174	95	50	120	108.4	96256	PASS
175	174	5	9	7.4	7167	PASS
176	174	95	101	99.2	95488	PASS
177	176	5	9	6.5	6216	PASS

Data File: /chem/k.i/k950509.b/k129bf1.d

Page 2

Date : 09-MAY-95 10:11

Client ID:

Instrument: k.i

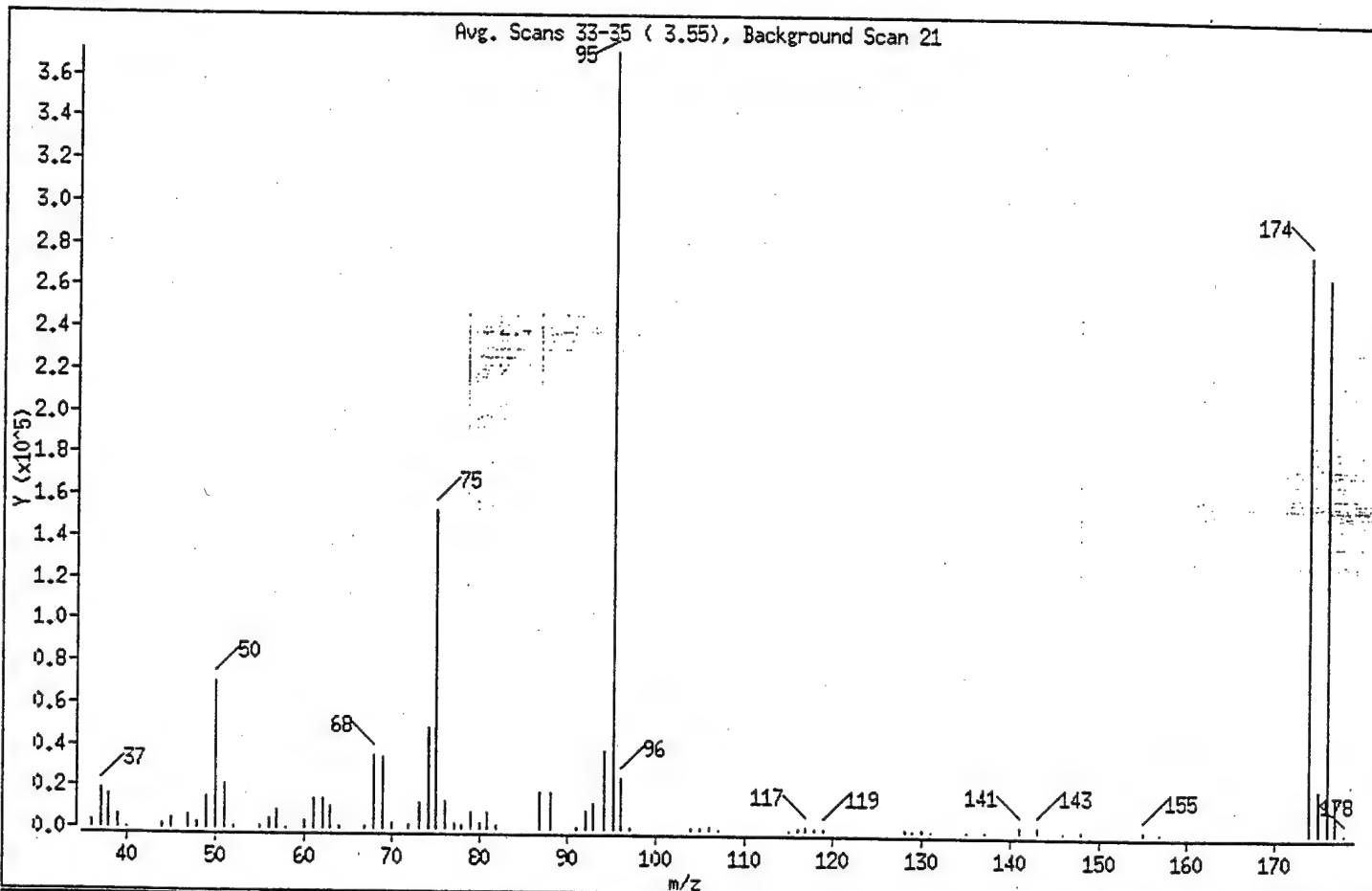
Sample Info: BFB 50 NG

Operator:

Column phase:

Column diameter: 2.00

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	18.95
75	30.00 - 60.00% of mass 95	41.14
96	5.00 - 9.00% of mass 95	6.52
173	Less than 2.00% of mass 174	0.00 ( 0.00)
174	50.00 - 120.00% of mass 95	74.71
175	5.00 - 9.00% of mass 174	5.61 ( 7.51)
176	95.00 - 101.00% of mass 174	71.88 ( 96.22)
177	5.00 - 9.00% of mass 176	4.77 ( 6.64)

Data File: /chem/k.i/k950509.b/k129bf1.d

Page 3

Date : 09-MAY-95 10:11

Client ID:

Instrument: k.i

Sample Info: BFB 50 NG

Operator:

Column phase:

Column diameter: 2.00

Data File: k129bf1.d

Spectrum : Avg. Scans 33-35 ( 3.55), Background Scan 21

Largest m/z: 95.10

Number of peaks: 72

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	3803	62.05	13883	88.05	17792	129.95	1052
37.10	18904	63.05	10314	91.00	1259	131.00	181
38.10	16210	64.05	999	92.10	8673	135.00	245
39.10	6108	66.95	539	93.00	12683	136.90	212
40.00	96	68.05	35072	94.10	37624	140.95	2473
44.05	1612	69.05	34656	95.10	372096	142.95	2646
45.05	4027	70.05	2834	96.10	24272	145.95	223
47.05	6049	72.00	1832	97.10	808	147.95	834
47.95	2424	73.10	12557	103.95	1290	155.00	794
49.05	14547	74.10	48176	104.95	838	156.90	424
50.05	70512	75.10	153088	105.95	1346	174.00	277952
51.10	21104	76.10	13253	106.95	188	175.00	20872
52.10	1098	77.10	2474	115.00	171	176.00	267456
55.10	1039	78.00	1771	115.90	939	177.00	17752
56.00	4571	78.90	7822	116.90	1701	178.00	395
57.00	9122	80.00	2237	117.90	963		
58.00	215	80.95	8051	118.90	1280		
60.00	3258	81.95	1611	127.95	1081		
61.05	14489	86.95	17832	128.95	244		



Data File: /chem/k.i/k950509.b/k129bf1.d

Page 1

Date : 09-MAY-95 10:11

Client ID:

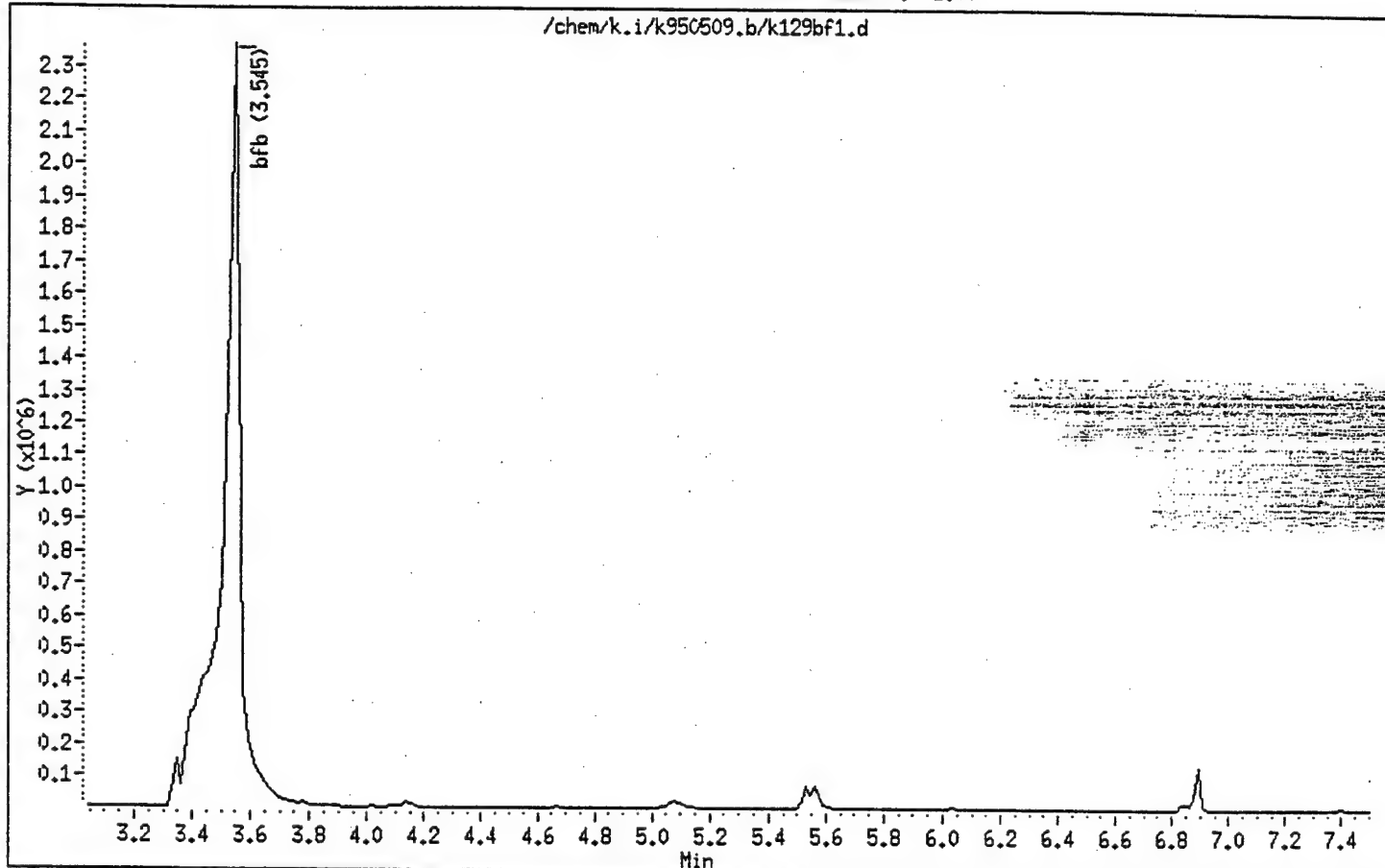
Instrument: k.i

Sample Info: BFB 50 NG

Operator:

Column phase:

Column diameter: 2.00



Report Date : 03-May-1995 10:04

Page 1

# SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 02-MAY-1995 20:30  
 End Cal Date : 02-MAY-1995 21:27  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/k.i/k950502.b/kvoclp.s.m  
 Cal Date : 03-May-1995 10:04 hillery  
 Curve Type : Average

### Calibration File Names:

Level 1: /chem/k.i/k950502.b/k122is1e.d  
 Level 2: /chem/k.i/k950502.b/k122is2e.d  
 Level 3: /chem/k.i/k950502.b/k122cs7.d  
 Level 4: /chem/k.i/k950502.b/k122is4e.d  
 Level 5: /chem/k.i/k950502.b/k122is5e.d

Compound	50 Level 1	100 Level 2	250 Level 3	500 Level 4	1000 Level 5	RRF	% RSD
4 Chloromethane	2.61598	2.81482	2.12233	2.24403	2.45830	2.45109	11.367
5 Vinyl Chloride	2.65380	2.94683	2.27075	2.29473	2.52382	2.53798	10.993
7 Bromomethane	2.11466	2.01524	1.61752	1.66188	1.78547	1.93895	11.862
6 Chloroethane	1.70772	2.47252	1.96573	1.98068	2.14242	2.05381	13.687
9 Trichlorofluoromethane	1.49304	2.08578	2.00085	1.92770	2.26966	1.95541	14.741
8 Acetone	0.27178	0.26116	0.28834	0.18784	0.20866	0.24356	17.700
10 1,1-Dichloroethene	1.85538	2.17717	2.01911	2.00216	2.12934	2.03663	6.147
11 Methylene Chloride	2.38104	2.68890	2.40798	2.23657	2.35295	2.41349	6.930
1 1,2-Dichloroethene (total)	2.48786	2.60735	2.54327	2.57358	2.54340	2.55109	1.730
12 Carbon Disulfide	7.61210	8.72426	7.92999	7.84861	8.50089	8.12317	5.767
13 trans-1,2-Dichloroethene	2.45393	2.74754	2.54113	2.51774	2.65500	2.58307	4.537
14 1,1-Dichloroethane	4.64531	5.12809	4.72981	4.78124	4.76879	4.81065	3.851
16 Vinyl Acetate	4.39095	4.67428	4.62771	4.19908	3.81329	4.34106	8.099
17 2-Butanone	2.07727	1.95040	2.25063	1.42863	1.46330	1.93405	20.182
19 cis-1,2-Dichloroethene	2.52179	2.46715	2.54541	2.62942	2.43180	2.51911	3.022
21 Chloroform	4.03686	4.22412	3.99063	3.86111	4.20345	4.06323	3.740
24 1,1,1-Trichloroethane	3.10851	3.57553	3.17577	3.10886	3.55489	3.30471	7.247
25 1,2-Dichloroethane	0.46771	0.44242	0.46820	0.45167	0.45093	0.45619	2.487
27 Benzene	1.45923	1.42676	1.47373	1.47356	1.42845	1.45235	1.608
28 Carbon Tetrachloride	0.37727	0.36450	0.38452	0.39331	0.40772	0.38546	4.232
33 1,2-Dichloropropane	0.39723	0.37732	0.40855	0.37269	0.37777	0.38671	3.990
34 Trichloroethene	0.33210	0.31444	0.34870	0.32128	0.32473	0.32825	3.986
35 Bromodichloromethane	0.41562	0.40335	0.45507	0.41056	0.44324	0.42557	5.255
15 2-Chloroethylvinylether	0.76056	0.69309	0.74966	0.77129	0.68699	0.73232	5.381
38 4-Methyl-2-Pentanone	0.36838	0.41150	0.43019	0.23238	0.26823	0.34214	25.631
42 cis-1,3-Dichloropropene	0.39013	0.36628	0.41665	0.38134	0.39805	0.39049	4.810
37 trans-1,3-Dichloropropene	0.66711	0.74886	0.70980	0.62420	0.74084	0.69816	7.498

## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 02-MAY-1995 20:30  
 End Cal Date : 02-MAY-1995 21:27  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/k.i/k950502.b/kvoclp.s.m  
 Cal Date : 03-May-1995 10:04 hillery  
 Curve Type : Average

Compound	50 Level 1	100 Level 2	250 Level 3	500 Level 4	1000 Level 5	RRF	% RSD
43 Toluene	1.22134	1.32245	1.18326	1.04139	1.17488	1.18866	8.504
44 1,1,2-Trichloroethane	0.34616	0.33240	0.31910	0.27189	0.31178	0.31627	8.874
45 2-Hexanone	0.35970	0.40509	0.51642	0.14372	0.31633	0.38825	46.295
46 Dibromochloromethane	0.36006	0.38294	0.37802	0.33114	0.40668	0.37177	7.573
48 Tetrachloroethene	0.41111	0.43522	0.40448	0.35990	0.40363	0.40287	6.757
52 Chlorobenzene	1.13558	1.08935	1.14714	1.12095	1.06593	1.11179	3.019
M 2 Xylene (Total)	0.69398	0.81685	0.69844	0.69500	0.67635	0.71612	7.953
53 Ethylbenzene	0.59157	0.65401	0.60740	0.59508	0.59898	0.60941	4.204
54 m,p-Xylene(s)	0.71166	0.83335	0.73199	0.70548	0.65004	0.72650	9.222
55 Bromoform	0.17950	0.21853	0.21733	0.20692	0.24260	0.21298	10.719
57 Styrene	1.03398	1.23180	1.04130	1.08557	1.25174	1.12888	9.316
58 o-Xylene	0.65863	0.78384	0.63135	0.67405	0.72897	0.69537	8.765
59 1,1,2,2-Tetrachloroethane	0.36578	0.44209	0.33519	0.32841	0.31594	0.35748	14.192
S 23 1,2-Dichloroethane-d4	0.46776	0.54303	0.42892	0.45129	0.52086	0.48237	9.941
S 40 Toluene-d8	1.71636	1.89329	1.54687	1.47209	1.67607	1.66093	9.799
S 61 Bromofluorobenzene	0.65848	0.66793	0.55819	0.46477	0.53858	0.57759	14.826

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122isle.d  
Lab Smp Id: 10 PPB STD 8240S  
Inj Date : 02-MAY-1995 20:30  
Operator : HLW  
Smp Info : 10 PPB STD 8240S  
Misc Info :  
Comment :  
Method : /chem/k.i/k950502.b/kvoclp.s.m  
Meth Date : 10-May-1995 12:23 hillery  
Cal Date : 02-MAY-1995 18:00  
Als bottle: 9  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i  
Quant Type: ISTD  
Cal File: k122cs7.d  
Compound Sublist: normal.sub

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
4 Chloromethane	50.00	1.348	1.392 (0.636)		43102	62	12
5 Vinyl Chloride	62.00	1.394	1.422 (0.657)		43725	58	12 (Q)
7 Bromomethane	94.00	1.424	1.437 (0.671)		34842	65	13
6 Chloroethane	64.00	1.439	1.437 (0.679)		28137	43	9 (aQ)
9 Trichlorofluoromethane	100.90	1.515	1.528 (0.714)		24600	37	7
8 Acetone	58.00	1.515	1.513 (0.714)		4478	47	9 (aQM)
10 1,1-Dichloroethene	96.00	1.621	1.619 (0.764)		30570	46	9
11 Methylene Chloride	84.00	1.667	1.665 (0.786)		39231	49	10
M 1 1,2-Dichloroethene (total)	96.00				81982	98	20
12 Carbon Disulfide	76.00	1.712	1.710 (0.807)		125420	48	10
13 trans-1,2-Dichloroethene	96.00	1.773	1.786 (0.836)		40432	48	10
14 1,1-Dichloroethane	63.00	1.848	1.846 (0.871)		76538	49	10
16 Vinyl Acetate	43.00	1.863	1.862 (0.879)		72347	47	9 (a)
17 2-Butanone	43.00	1.970	1.952 (0.929)		34226	46	9 (a)
19 cis-1,2-Dichloroethene	96.00	2.045	2.043 (0.964)		41550	50	10
21 Chloroform	83.00	2.121	2.119 (1.000)		66513	50	10
24 1,1,1-Trichloroethane	97.00	2.394	2.392 (1.129)		51217	49	10
25 1,2-Dichloroethane	62.00	2.409	2.407 (0.864)		47068	50	10
27 Benzene	78.00	2.545	2.543 (0.913)		146848	50	10
28 Carbon Tetrachloride	117.00	2.576	2.574 (0.924)		37966	49	10
33 1,2-Dichloropropane	63.00	3.076	3.074 (1.103)		39975	49	10
34 Trichloroethene	130.00	3.091	3.089 (1.109)		33421	48	10
35 Bromodichloromethane	83.00	3.212	3.210 (1.152)		41826	46	9
15 2-Chloroethylvinylether	63.00	1.848	1.846 (0.663)		76538	51	10
38 4-Methyl-2-Pentanone	43.00	4.061	3.998 (1.457)		37072	43	8 (a)
42 cis-1,3-Dichloropropene	75.00	4.651	4.634 (1.669)		39260	47	9
37 trans-1,3-Dichloropropene	75.00	3.954	3.953 (0.587)		47187	47	9
43 Toluene	92.00	4.636	4.634 (0.688)		86390	52	10
44 1,1,2-Trichloroethane	83.00	4.788	4.771 (0.710)		24485	54	11

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
-----	----	--	-----	-----	-----	-----	-----
45 2-Hexanone	43.00	5.424	5.347	(0.804)	25443	35	7(a)
46 Dibromochloromethane	129.00	5.394	5.377	(0.800)	25468	48	10
48 Tetrachloroethene	164.00	5.788	5.786	(0.858)	29079	51	10
52 Chlorobenzene	112.00	6.803	6.801	(1.009)	80324	49	10
M 2 Xylene (Total)	106.00				147264	150	30
53 Ethylbenzene	106.00	7.242	7.241	(1.074)	41844	49	10
54 m,p-Xylene(s)	106.00	7.455	7.468	(1.106)	100677	97	19
55 Bromoform	173.00	7.818	7.816	(1.160)	12697	41	8
57 Styrene	104.00	8.015	8.013	(1.189)	73137	50	10
58 o-Xylene	106.00	8.061	8.074	(1.196)	46587	52	10
59 1,1,2,2-Tetrachloroethane	83.00	8.621	8.604	(1.279)	25873	54	11
* 20 Bromochloromethane	128.00	2.121	2.119	(1.000)	82382	250	
* 31 1,4-Difluorobenzene	114.00	2.788	2.786	(1.000)	503171	250	
* 51 Chlorobenzene-d5	117.00	6.742	6.756	(1.000)	353668	250	6.756(1.000)353668
\$ 23 1,2-Dichloroethane-d4	102.00	2.364	2.362	(1.114)	7707	54	11(R)
\$ 40 Toluene-d8	98.00	4.530	4.528	(0.672)	121404	55	11(R)
\$ 61 Bromofluorobenzene	95.00	8.864	8.847	(1.315)	46577	59	12(R)

# QC Flag Legend

- a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: k.i  
 Lab File ID: k122isle.d  
 Lab Smp Id: 10 PPB STD 8240S  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: HLW  
 Method File: /chem/k.i/k950502.b/kvoclps.m  
 Misc Info:

Calibration Date: 05/02/95  
 Calibration Time: 1800

Level: LOW  
 Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	77408	38704	154816	82382	6.43
31 1,4-Difluorobenzene	488350	244175	976700	503171	3.03
51 Chlorobenzene-d5	357839	178920	715678	353668	-1.17

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.10
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.07
51 Chlorobenzene-d5	6.76	6.26	7.26	6.74	-0.19

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950502.b/k1221s1e.d  
Date : 02-MAY-1995 20:30

Client ID:

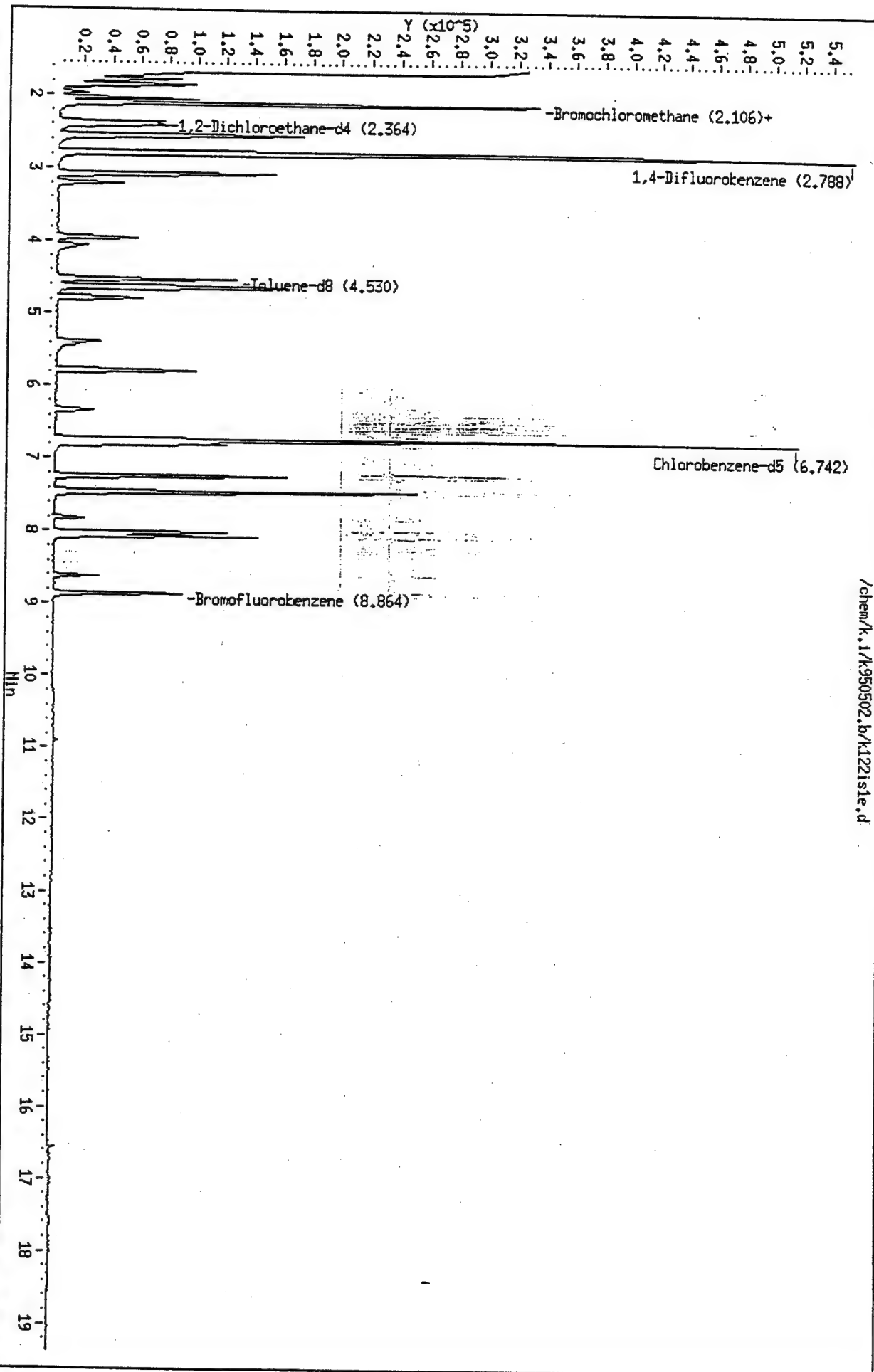
Sample Info: 10 PPB STD 82405

Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1

Operator: HLM

Column diameter: 0.25



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122is2e.d

Lab Smp Id: 20 PPB STD 8240S

Inj Date : 02-MAY-1995 19:54

Operator : HLW

Inst ID: k.i

Smp Info : 20 PPB STD 8240S

Misc Info :

Comment :

Method : /chem/k.i/k950502.b/kvoclp.s.m

Meth Date : 10-May-1995 12:23 hillery Quant Type: ISTD

Cal Date : 02-MAY-1995 18:00

Cal File: k122cs7.d

Als bottle: 8

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Compound Sublist: normal.sub

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng )	(ug/Kg)
4 Chloromethane		50.00	1.362	1.392	(0.643)	81838	130	26
5 Vinyl Chloride		62.00	1.392	1.422	(0.657)	85676	130	26 (QM)
7 Bromomethane		94.00	1.438	1.437	(0.678)	58591	120	25
6 Chloroethane		64.00	1.453	1.437	(0.685)	71886	120	25 (Q)
9 Trichlorofluoromethane		100.90	1.529	1.528	(0.721)	60642	100	21
8 Acetone		58.00	1.514	1.513	(0.714)	7593	90	18 (aQM)
10 1,1-Dichloroethene		96.00	1.620	1.619	(0.764)	63299	110	22
11 Methylene Chloride		84.00	1.665	1.665	(0.786)	78177	110	22
M 1 1,2-Dichloroethene (total)		96.00				151612	200	41
12 Carbon Disulfide		76.00	1.710	1.710	(0.807)	253649	110	22
13 trans-1,2-Dichloroethene		96.00	1.786	1.786	(0.843)	79882	110	22
14 1,1-Dichloroethane		63.00	1.847	1.846	(0.871)	149094	110	22
16 Vinyl Acetate		43.00	1.862	1.862	(0.878)	135900	100	20
17 2-Butanone		43.00	1.968	1.952	(0.928)	56706	87	17 (a)
19 cis-1,2-Dichloroethene		96.00	2.044	2.043	(0.964)	71730	97	19
21 Chloroform		83.00	2.120	2.119	(1.000)	122812	100	21
24 1,1,1-Trichloroethane		97.00	2.392	2.392	(1.129)	103955	110	22
25 1,2-Dichloroethane		62.00	2.408	2.407	(0.864)	95170	94	19
27 Benzene		78.00	2.544	2.543	(0.913)	306916	97	19
28 Carbon Tetrachloride		117.00	2.574	2.574	(0.924)	78408	95	19
33 1,2-Dichloropropane		63.00	3.074	3.074	(1.103)	81167	92	18
34 Trichloroethene		130.00	3.089	3.089	(1.109)	67641	90	18
35 Bromodichloromethane		83.00	3.211	3.210	(1.152)	86766	89	18
15 2-Chloroethylvinylether		63.00	1.847	1.846	(0.663)	149094	92	18
38 4-Methyl-2-Pentanone		43.00	4.029	3.998	(1.446)	88519	96	19
42 cis-1,3-Dichloropropene		75.00	4.635	4.634	(1.663)	78792	88	18
37 trans-1,3-Dichloropropene		75.00	3.953	3.953	(0.586)	99671	100	21
43 Toluene		92.00	4.635	4.634	(0.688)	176014	110	22
44 1,1,2-Trichloroethane		83.00	4.786	4.771	(0.710)	44241	100	21



						CONCENTRATIONS	
Compounds	QUANT SIG				RESPONSE	ON-COLUMN	FINAL
	MASS	RT	EXP RT	REL RT		( ng)	(ug/Kg)
-----	----	--	-----	-----	-----	-----	-----
45 2-Hexanone	43.00	5.392	5.347	(0.800)	80536	120	23
46 Dibromochloromethane	129.00	5.392	5.377	(0.800)	50968	100	20
48 Tetrachloroethene	164.00	5.786	5.786	(0.858)	57926	110	22
52 Chlorobenzene	112.00	6.802	6.801	(1.009)	144990	95	19
M 2 Xylene (Total)	106.00				326160	350	70
53 Ethylbenzene	106.00	7.241	7.241	(1.074)	87047	110	22
54 m,p-Xylene(s)	106.00	7.453	7.468	(1.106)	221833	230	46
55 Bromoform	173.00	7.817	7.816	(1.160)	29086	100	20
57 Styrene	104.00	8.014	8.013	(1.189)	163949	120	24
58 o-Xylene	106.00	8.059	8.074	(1.196)	104327	120	25
59 1,1,2,2-Tetrachloroethane	83.00	8.605	8.604	(1.276)	58841	130	26
* 20 Bromochloromethane	128.00	2.120	2.119	(1.000)	72685	250	
* 31 1,4-Difluorobenzene	114.00	2.786	2.786	(1.000)	537784	250	
* 51 Chlorobenzene-d5	117.00	6.741	6.756	(1.000)	332743	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.362	2.362	(1.114)	15788	130	25 (R)
\$ 40 Toluene-d8	98.00	4.529	4.528	(0.672)	251991	120	24 (R)
\$ 61 Bromofluorobenzene	95.00	8.862	8.847	(1.315)	88899	120	24 (R)

# QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Labs.

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k122is2e.d  
Lab Smp Id: 20 PPB STD 8240S  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950502.b/kvoc1ps.m  
Misc Info:

Calibration Date: 05/02/95  
Calibration Time: 1800  
Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	20.77408	138704	154816	72685	-6.10
31 1,4-Difluorobenzene	31.488350	244175	976700	537784	10.12
51 Chlorobenzene-d5	51.357839	178920	715678	332743	-7.01

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.03
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.02
51 Chlorobenzene-d5	6.76	6.26	7.26	6.74	-0.22

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950502.b/k1221s2e.d  
Date : 02-MAY-1995 19:54

Client ID:

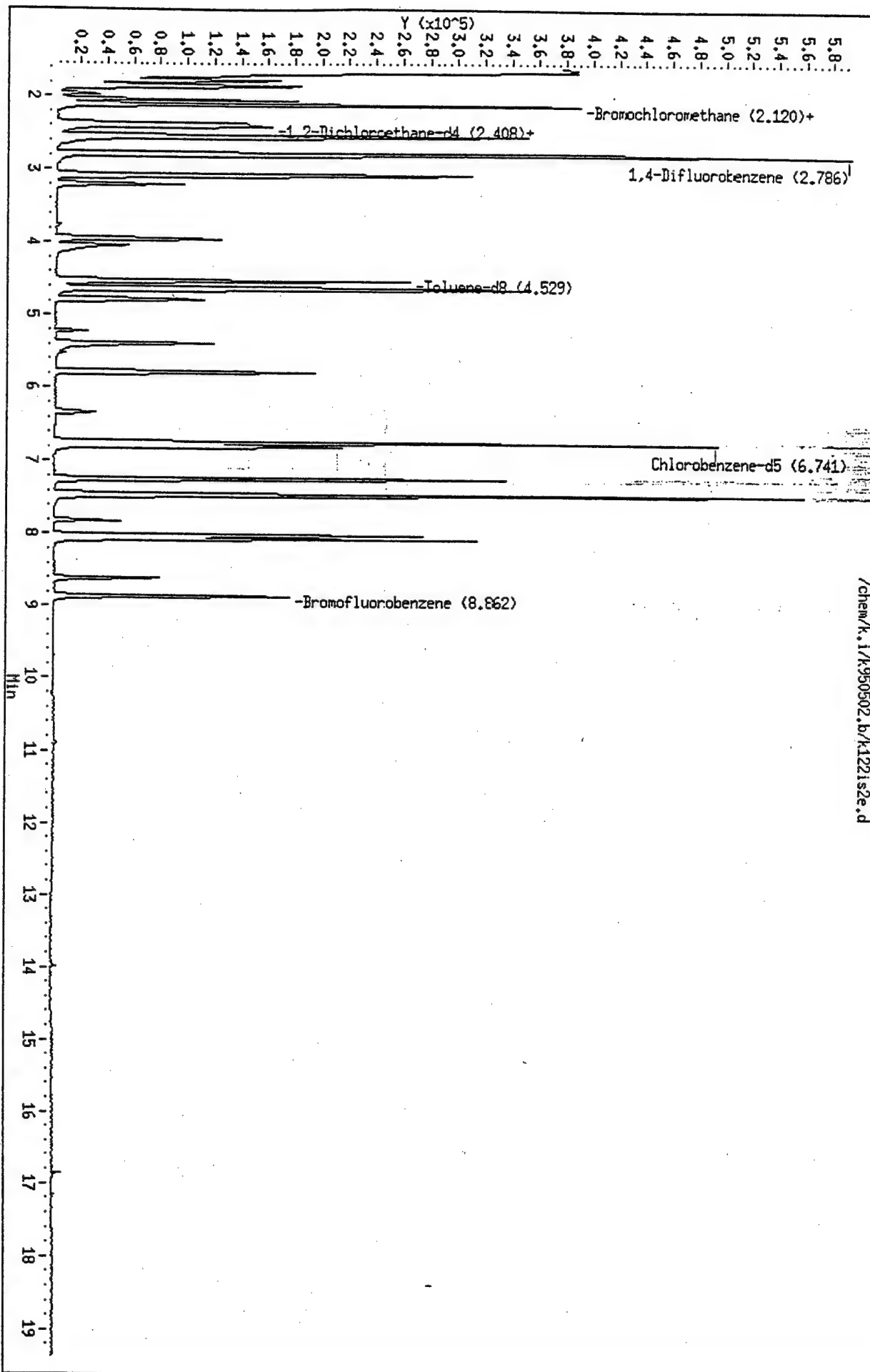
Sample Info: 20 PPB STD 82405

Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1

Operator: HLM

Column diameter: 0.25



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122cs7.d  
Lab Smp Id: 50 PPB STD 8240S  
Inj Date : 02-MAY-1995 18:00  
Operator : HLW  
Smp Info : 50 PPB STD 8240S  
Misc Info :  
Comment :  
Method : /chem/k.i/k950502.b/kvoclp.s.m  
Meth Date : 10-May-1995 12:23 hillery  
Cal Date : 02-MAY-1995 18:00  
Als bottle: 5  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i

Quant Type: ISTD  
Cal File: k122cs7.d

Compound Sublist: normal.sub

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
4 Chloromethane	50.00	1.361	1.392	(0.642)	164285	250	50
5 Vinyl Chloride	62.00	1.407	1.422	(0.664)	175774	250	50
7 Bromomethane	94.00	1.437	1.437	(0.678)	125209	250	50
6 Chloroethane	64.00	1.437	1.437	(0.678)	152163	250	50
9 Trichlorofluoromethane	100.90	1.528	1.528	(0.721)	154882	250	50
8 Acetone	58.00	1.513	1.513	(0.714)	22320	250	50 (a)
10 1,1-Dichloroethene	96.00	1.619	1.619	(0.764)	156295	250	50
11 Methylene Chloride	84.00	1.665	1.665	(0.785)	186397	250	50
M 1 1,2-Dichloroethene (total)	96.00				393739	500	100
12 Carbon Disulfide	76.00	1.710	1.710	(0.807)	613845	250	50
13 trans-1,2-Dichloroethene	96.00	1.786	1.786	(0.843)	196704	250	50
14 1,1-Dichloroethane	63.00	1.846	1.846	(0.871)	366125	250	50
16 Vinyl Acetate	43.00	1.861	1.862	(0.878)	358222	250	50
17 2-Butanone	43.00	1.968	1.952	(0.928)	174217	250	50
19 cis-1,2-Dichloroethene	96.00	2.043	2.043	(0.964)	197035	250	50
21 Chloroform	83.00	2.119	2.119	(1.000)	308907	250	50
24 1,1,1-Trichloroethane	97.00	2.392	2.392	(1.129)	245830	250	50
25 1,2-Dichloroethane	62.00	2.407	2.407	(0.864)	228647	250	50
27 Benzene	78.00	2.543	2.543	(0.913)	719698	250	50
28 Carbon Tetrachloride	117.00	2.574	2.574	(0.924)	187782	250	50
33 1,2-Dichloropropane	63.00	3.074	3.074	(1.103)	199516	250	50
34 Trichloroethene	130.00	3.089	3.089	(1.109)	170287	250	50
35 Bromodichloromethane	83.00	3.210	3.210	(1.152)	222234	250	50
15 2-Chloroethylvinylether	63.00	1.846	1.846	(0.663)	366096	250	50
38 4-Methyl-2-Pentanone	43.00	4.013	3.998	(1.441)	210082	250	50
42 cis-1,3-Dichloropropene	75.00	4.649	4.634	(1.669)	203470	250	50
37 trans-1,3-Dichloropropene	75.00	3.952	3.953	(0.585)	253995	250	50
43 Toluene	92.00	4.634	4.634	(0.686)	423416	250	50
44 1,1,2-Trichloroethane	83.00	4.786	4.771	(0.708)	114187	250	50

QUANT SIG						CONCENTRATIONS	
Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
-----	----	--	-----	-----	-----	-----	-----
45 2-Hexanone	43.00	5.377	5.347	(0.796)	184794	250	50
46 Dibromochloromethane	129.00	5.392	5.377	(0.798)	135271	250	50
48 Tetrachloroethene	164.00	5.801	5.786	(0.859)	144739	250	50
52 Chlorobenzene	112.00	6.801	6.801	(1.007)	410492	250	50
M 2 Xylene (Total)	106.00				749788	750	150
53 Ethylbenzene	106.00	7.240	7.241	(1.072)	217352	250	50
54 m,p-Xylene(s)	106.00	7.468	7.468	(1.105)	523866	500	100
55 Bromoform	173.00	7.816	7.816	(1.157)	77770	250	50
57 Styrene	104.00	8.013	8.013	(1.186)	372618	250	50
58 o-Xylene	106.00	8.074	8.074	(1.195)	225922	250	50
59 1,1,2,2-Tetrachloroethane	83.00	8.604	8.604	(1.274)	119944	250	50
* 20 Bromochloromethane	128.00	2.119	2.119	(1.000)	77408	250	
* 31 1,4-Difluorobenzene	114.00	2.786	2.786	(1.000)	488350	250	
* 51 Chlorobenzene-d5	117.00	6.756	6.756	(1.000)	357839	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.361	2.362	(1.114)	33202	250	50
\$ 40 Toluene-d8	98.00	4.528	4.528	(0.670)	553531	250	50
\$ 61 Bromofluorobenzene	95.00	8.862	8.847	(1.312)	199743	250	50

#### QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: k.i  
 Lab File ID: k122cs7.d  
 Lab Smp Id: 50 PPB STD 8240S  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: HLW  
 Method File: /chem/k.i/k950502.b/kvoclp.s.m  
 Misc Info:

Calibration Date: 05/02/95  
 Calibration Time: 1800  
 Level: LOW  
 Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	77408	38704	154816	77408	0.00
31 1,4-Difluorobenzene	488350	244175	976700	488350	0.00
51 Chlorobenzene-d5	357839	178920	715678	357839	0.00

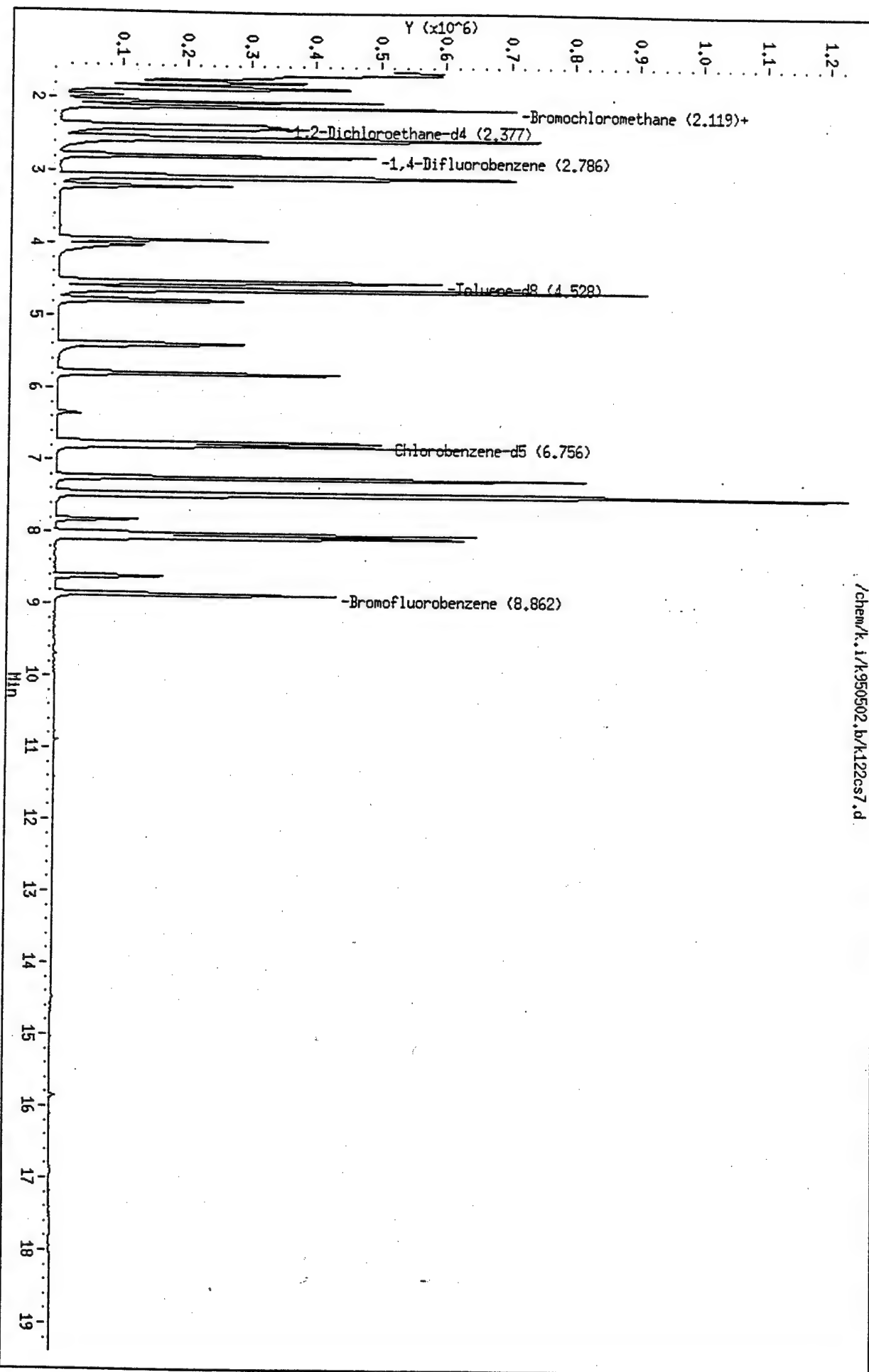
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.00
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.00
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950502.b/k122cs7.d  
Date : 02-MAY-1995 18:00  
Client ID:  
Sample Info: 50 PPB STD 8240S

Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1  
Operator: HLM  
Column diameter: 0.25



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122is4e.d

Lab Smp Id: 100 PPB STD 8240S

Inj Date : 02-MAY-1995 21:00

Operator : HLW

Inst ID: k.i

Smp Info : 100 PPB STD 8240S

Misc Info :

Comment :

Method : /chem/k.i/k950502.b/kvoclp.s

Meth Date : 10-May-1995 12:23 hillery Quant Type: ISTD

Cal Date : 02-MAY-1995 18:00 Cal File: k122cs7.d

Als bottle: 9

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Compound Sublist: normal.sub

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	(ug/Kg)
4 Chloromethane		50.00	1.377	1.392	(0.650)	363004	530	100
5 Vinyl Chloride		62.00	1.422	1.422	(0.671)	371205	500	100
7 Bromomethane		94.00	1.437	1.437	(0.678)	268832	510	100
6 Chloroethane		64.00	1.437	1.437	(0.678)	320402	500	100
9 Trichlorofluoromethane		100.90	1.528	1.528	(0.721)	311832	480	96
8 Acetone		58.00	1.513	1.513	(0.714)	30386	320	65(a)
10 1,1-Dichloroethene		96.00	1.619	1.619	(0.764)	323877	500	99
11 Methylene Chloride		84.00	1.665	1.665	(0.785)	361796	460	93
M 1 1,2-Dichloroethene (total)		96.00				832625	1000	200
12 Carbon Disulfide		76.00	1.725	1.710	(0.814)	1269622	490	99
13 trans-1,2-Dichloroethene		96.00	1.786	1.786	(0.843)	407280	500	99
14 1,1-Dichloroethane		63.00	1.847	1.846	(0.871)	773432	500	100
16 Vinyl Acetate		43.00	1.862	1.862	(0.878)	679260	450	91
17 2-Butanone		43.00	1.953	1.952	(0.921)	231101	320	63
19 cis-1,2-Dichloroethene		96.00	2.043	2.043	(0.964)	425345	520	100
21 Chloroform		83.00	2.119	2.119	(1.000)	624589	480	97
24 1,1,1-Trichloroethane		97.00	2.392	2.392	(1.129)	502902	490	98
25 1,2-Dichloroethane		62.00	2.407	2.407	(0.864)	452921	480	96
27 Benzene		78.00	2.544	2.543	(0.913)	1477643	500	100
28 Carbon Tetrachloride		117.00	2.574	2.574	(0.924)	394399	510	100
33 1,2-Dichloropropane		63.00	3.074	3.074	(1.103)	373720	460	91
34 Trichloroethene		130.00	3.089	3.089	(1.109)	322170	460	92
35 Bromodichloromethane		83.00	3.210	3.210	(1.152)	411699	450	90
15 2-Chloroethylvinylether		63.00	1.847	1.846	(0.663)	773432	510	100
38 4-Methyl-2-Pentanone		43.00	4.013	3.998	(1.441)	233024	270	54
42 cis-1,3-Dichloropropene		75.00	4.635	4.634	(1.664)	382393	460	92
37 trans-1,3-Dichloropropene		75.00	3.953	3.953	(0.585)	481365	440	88
43 Toluene		92.00	4.635	4.634	(0.686)	803091	440	88
44 1,1,2-Trichloroethane		83.00	4.786	4.771	(0.708)	209676	430	85



Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	(ug/Kg)
45 2-Hexanone		43.00	5.377	5.347	(0.796)	110835	140	28
46 Dibromochloromethane		129.00	5.392	5.377	(0.798)	255368	440	88
48 Tetrachloroethene		164.00	5.786	5.786	(0.856)	277544	440	89
52 Chlorobenzene		112.00	6.801	6.801	(1.007)	864442	490	98
M 2 Xylene (Total)		106.00				1607895	1500	300
53 Ethylbenzene		106.00	7.241	7.241	(1.072)	458911	490	98
54 m,p-Xylene(s)		106.00	7.453	7.468	(1.103)	1088090	960	190
55 Bromoform		173.00	7.816	7.816	(1.157)	159567	480	95
57 Styrene		104.00	8.013	8.013	(1.186)	837162	520	100
58 o-Xylene		106.00	8.059	8.074	(1.193)	519805	530	110
59 1,1,2,2-Tetrachloroethane		83.00	8.604	8.604	(1.274)	253257	490	98
* 20 Bromochloromethane		128.00	2.119	2.119	(1.000)	80882	250	
* 31 1,4-Difluorobenzene		114.00	2.786	2.786	(1.000)	501386	250	
* 51 Chlorobenzene-d5		117.00	6.756	6.756	(1.000)	385585	250	
\$ 23 1,2-Dichloroethane-d4		102.00	2.362	2.362	(1.114)	73003	530	100(R)
\$ 40 Toluene-d8		98.00	4.528	4.528	(0.670)	1135233	480	95(R)
\$ 61 Bromofluorobenzene		95.00	8.847	8.847	(1.310)	358413	420	83(R)

# QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- R - Spike/Surrogate failed recovery limits.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k122is4e.d  
Lab Smp Id: 100 PPB STD 8240S  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950502.b/kvoc1ps.m  
Misc Info:

Calibration Date: 05/02/95  
Calibration Time: 1800  
Level: LOW  
Sample Type: SOIL

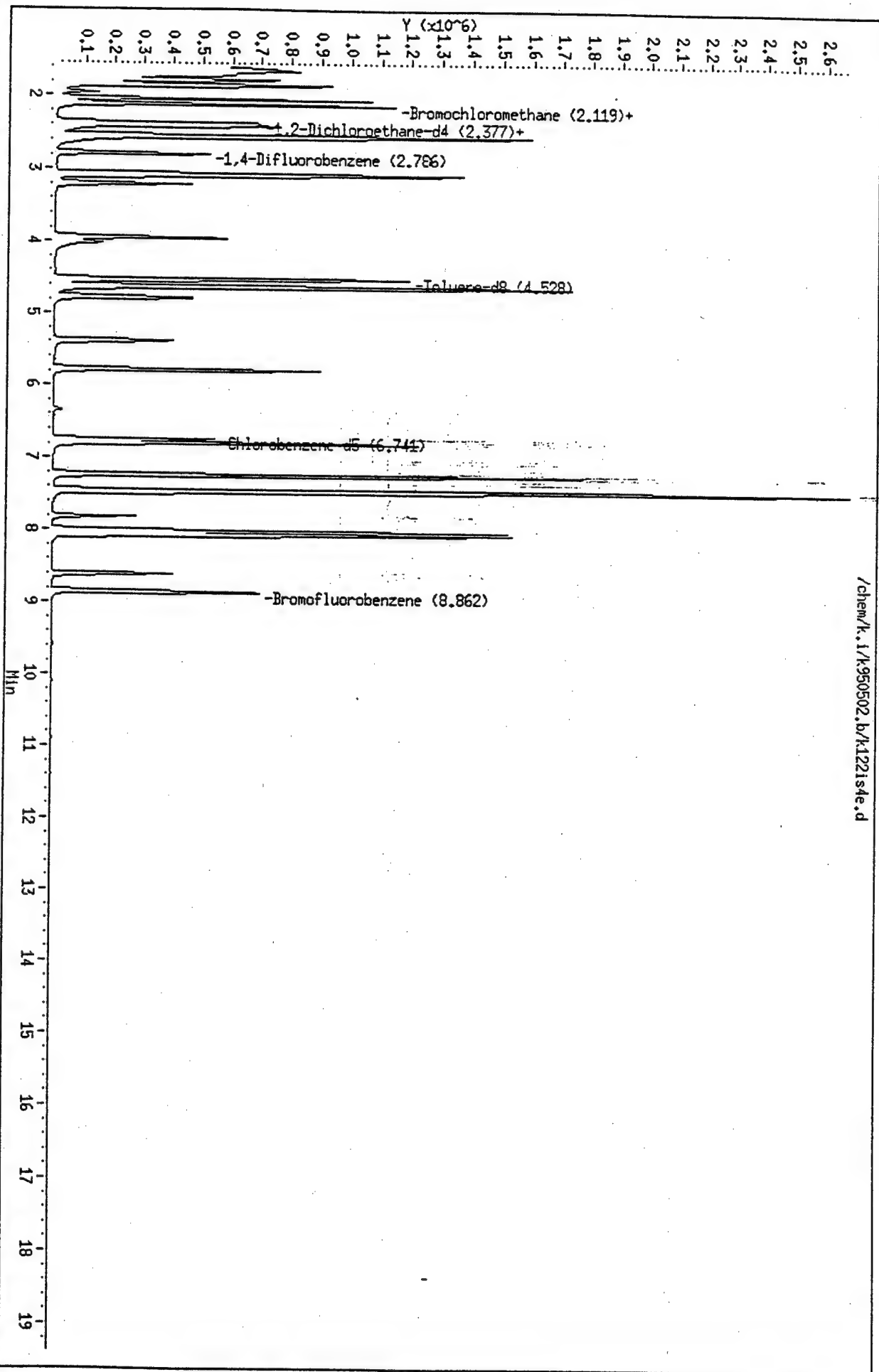
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	77408	38704	154816	780882	4.49
31 1,4-Difluorobenzene	488350	244175	976700	501386	2.67
51 Chlorobenzene-d5	357839	178920	715678	385585	17.75

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.01
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.01
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950502.b/k1221s4e.d  
Date : 02-MAY-1995 21:00  
Client ID:  
Sample Info: 100 PPB STD 82405  
Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1  
Operator: HLM  
Column diameter: 0.25



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122is5e.d  
Lab Smp Id: 200 PPB STD 8240S  
Inj Date : 02-MAY-1995 21:27  
Operator : HLW  
Smp Info : 200 PPB STD 8240S  
Misc Info :  
Comment :  
Method : /chem/k.i/k950502.b/kvoclp.s.m  
Meth Date : 10-May-1995 12:23 hillery  
Cal Date : 02-MAY-1995 18:00  
Als bottle: 10  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10  
Inst ID: k.i  
Quant Type: ISTD  
Cal File: k122cs7.d  
Compound Sublist: normal subpounds

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSES	INITIAL COLUMN (ng)	FINAL (ug/Kg)
4 Chloromethane	50.00	1.392	1.392	(0.657)	685728	1200	230
5 Vinyl Chloride	62.00	1.422	1.422	(0.671)	704004	1100	220
7 Bromomethane	94.00	1.437	1.437	(0.678)	498045	1100	220
6 Chloroethane	64.00	1.437	1.437	(0.678)	597616	1100	220
9 Trichlorofluoromethane	100.90	1.528	1.528	(0.721)	633109	1100	230
8 Acetone	58.00	1.513	1.513	(0.714)	58205	720	140
10 1,1-Dichloroethene	96.00	1.619	1.619	(0.764)	593966	1000	210
11 Methylene Chloride	84.00	1.665	1.665	(0.785)	656340	980	200
M 1 1,2-Dichloroethene (total)	96.00				1418932	2000	400(A)
12 Carbon Disulfide	76.00	1.710	1.710	(0.807)	2371271	1100	210
13 trans-1,2-Dichloroethene	96.00	1.786	1.786	(0.843)	740595	1000	210
14 1,1-Dichloroethane	63.00	1.846	1.846	(0.871)	1330224	1000	200
16 Vinyl Acetate	43.00	1.862	1.862	(0.878)	1063693	820	160
17 2-Butanone	43.00	1.952	1.952	(0.921)	408178	650	130
19 cis-1,2-Dichloroethene	96.00	2.043	2.043	(0.964)	678337	960	190
21 Chloroform	83.00	2.119	2.119	(1.000)	1172526	1000	210
24 1,1,1-Trichloroethane	97.00	2.392	2.392	(1.129)	991614	1100	220
25 1,2-Dichloroethane	62.00	2.407	2.407	(0.864)	873142	960	190
27 Benzene	78.00	2.543	2.543	(0.913)	2765913	970	190
28 Carbon Tetrachloride	117.00	2.574	2.574	(0.924)	789468	1100	210
33 1,2-Dichloropropane	63.00	3.074	3.074	(1.103)	731473	920	180
34 Trichloroethene	130.00	3.089	3.089	(1.109)	628771	930	190
35 Bromodichloromethane	83.00	3.210	3.210	(1.152)	858246	970	190
15 2-Chloroethylvinylether	63.00	1.846	1.846	(0.663)	1330224	920	180
38 4-Methyl-2-Pentanone	43.00	3.998	3.998	(1.435)	519380	620	120
42 cis-1,3-Dichloropropene	75.00	4.634	4.634	(1.664)	770745	960	190
37 trans-1,3-Dichloropropene	75.00	3.953	3.953	(0.585)	993745	1000	210
43 Toluene	92.00	4.634	4.634	(0.686)	1575951	990	200
44 1,1,2-Trichloroethane	83.00	4.771	4.771	(0.706)	418215	980	200

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
45 2-Hexanone	43.00	5.347	5.347	(0.791)	424312	610	120
46 Dibromochloromethane	129.00	5.377	5.377	(0.796)	545513	1100	220
48 Tetrachloroethene	164.00	5.786	5.786	(0.856)	541413	1000	200
52 Chlorobenzene	112.00	6.801	6.801	(1.007)	1429806	930	180
M 2 Xylene (Total)	106.00				2721696	2900	580
53 Ethylbenzene	106.00	7.241	7.241	(1.072)	803456	990	200
54 m,p-Xylene(s)	106.00	7.468	7.468	(1.105)	1743881	1800	360
55 Bromoform	173.00	7.816	7.816	(1.157)	325417	1100	220
57 Styrene	104.00	8.013	8.013	(1.186)	1679049	1200	240 (A)
58 o-Xylene	106.00	8.074	8.074	(1.195)	977815	1200	230
59 1,1,2,2-Tetrachloroethane	83.00	8.604	8.604	(1.274)	423790	940	190
* 20 Bromochloromethane	128.00	2.119	2.119	(1.000)	69736	250	250
* 31 1,4-Difluorobenzene	114.00	2.786	2.786	(1.000)	484077	250	250
* 51 Chlorobenzene-d5	117.00	6.756	6.756	(1.000)	335343	250	250
\$ 23 1,2-Dichloroethane-d4	102.00	2.362	2.362	(1.114)	145292	1200	240 (AR)
\$ 40 Toluene-d8	98.00	4.528	4.528	(0.670)	2248228	1100	220 (AR)
\$ 61 Bromofluorobenzene	95.00	8.847	8.847	(1.310)	722436	960	190 (R)

# QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- R - Spike/Surrogate failed recovery limits.

SPL Labs.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: k.i  
 Lab File ID: k122is5e.d  
 Lab Smp Id: 200 PPB STD 8240S  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: HLW  
 Method File: /chem/k.i/k950502.b/kvoclp.s.m  
 Misc Info:

Calibration Date: 05/02/95  
 Calibration Time: 1800  
 Level: LOW  
 Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	20 77408	38704	154816	77408	-9.91
31 1,4-Difluorobenzene	488350	244175	976700	484077	-0.87
51 Chlorobenzene-d5	357839	178920	715678	335343	-6.29

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.01
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.00
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.00

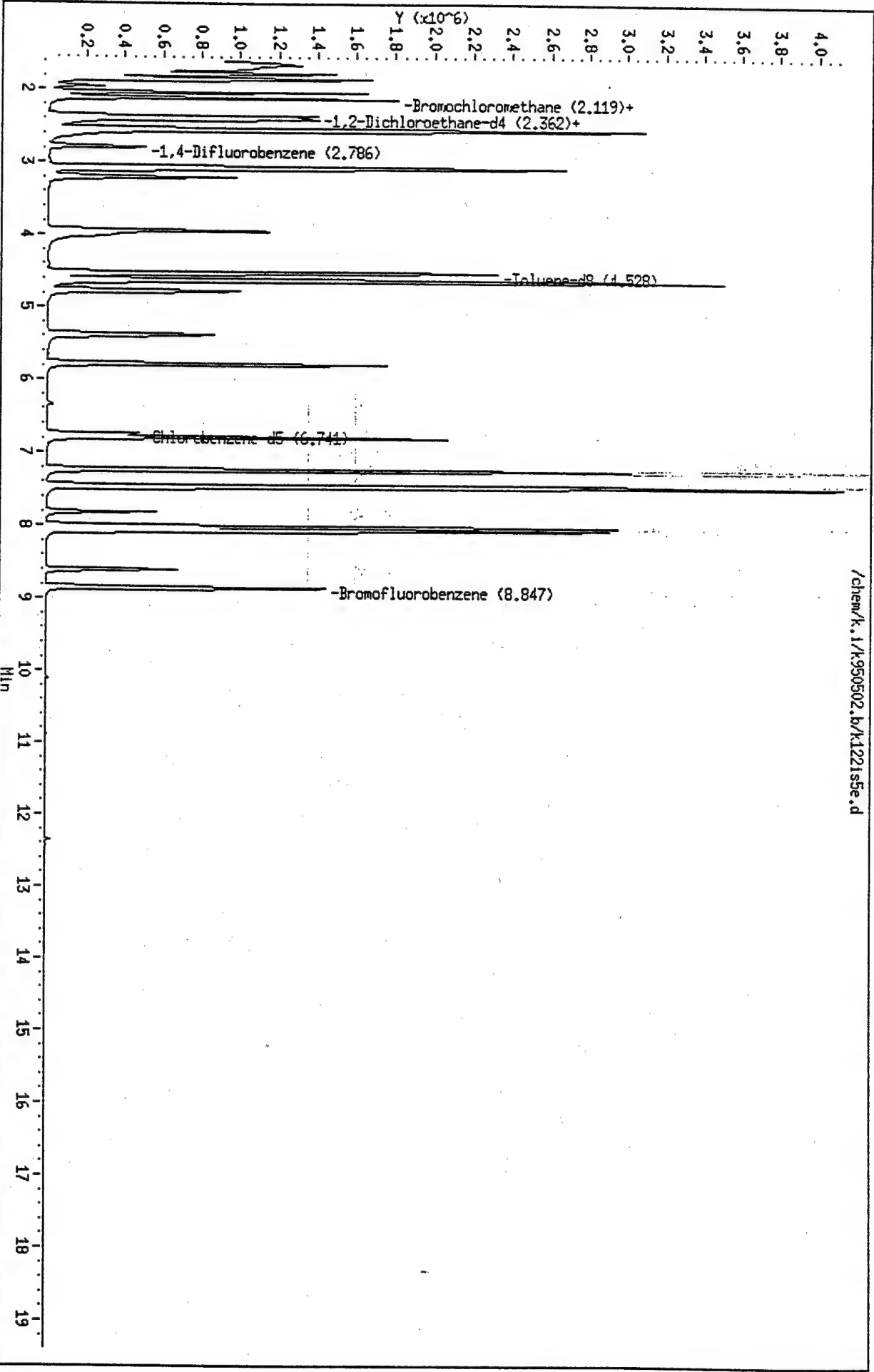
AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950502.b/k1221s5e.d  
Date : 02-MAY-1995 21:27

Client ID:  
Sample Info: 200 PPB STD 82405

Column phase: 30m,hp5ms,0.25u df

Instrument: k.i  
Operator: HLM  
Column diameter: 0.25



## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 02-MAY-1995 08:20  
 End Cal Date : 02-MAY-1995 10:09  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/1.i/1950502.b/lvoclpw.m  
 Cal Date : 02-May-1995 12:35 jimmy  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/1.i/1950502.b/l122iw1.d  
 Level 2: /chem/1.i/1950502.b/l122iw2.d  
 Level 3: /chem/1.i/1950502.b/l122iw3.d  
 Level 4: /chem/1.i/1950502.b/l122iw4.d  
 Level 5: /chem/1.i/1950502.b/l122iw5.d

Compound	50	100	250	500	1000	RRF	% RSD
	Level 1	Level 2	Level 3	Level 4	Level 5		
1 Chloromethane	2.18516	2.41369	2.34254	2.34459	2.27337	2.31187	3.741
2 Vinyl Chloride	1.99513	2.04224	1.97343	1.82446	1.64612	1.89627	8.535
3 Bromomethane	1.55227	1.52782	1.48024	1.46593	1.43200	1.49165	3.238
4 Chloroethane	1.17376	1.21365	1.21946	1.22653	1.18917	1.20452	1.844
7 Trichlorofluoromethane	1.08854	1.09152	1.22776	1.36602	1.69994	1.29475	19.599
8 Acetone	0.39432	0.37258	0.36915	0.40432	0.37568	0.38321	3.992
11 1,1-Dichloroethene	1.36223	1.40612	1.41890	1.45183	1.48326	1.42447	3.226
13 Methylene Chloride	1.65671	1.69764	1.70739	1.71305	1.71653	1.69826	1.431
14 Carbon Disulfide	5.47449	5.61112	5.70231	5.84509	5.92531	5.71166	3.155
15 trans-1,2-Dichloroethene	1.71472	1.76561	1.76706	1.80241	1.83084	1.77613	2.462
17 1,1-Dichloroethane	3.50970	3.57895	3.61300	3.70305	3.78693	3.63833	2.979
M 18 1,2-Dichloroethene (total)	1.79480	1.82876	1.86726	1.90995	1.94120	1.86839	3.168
19 Vinyl Acetate	6.10564	6.03371	6.03145	5.75757	5.72555	5.93078	2.962
20 2-Butanone	2.90135	2.80081	2.84705	2.72879	2.57111	2.76982	4.616
21 cis-1,2-Dichloroethene	1.87487	1.89190	1.96746	2.01748	2.05156	1.96066	3.920
24 Chloroform	3.27103	3.21705	3.24192	3.30903	3.36093	3.27999	1.730
27 1,1,1-Trichloroethane	0.44253	0.44230	0.44548	0.43804	0.44744	0.44316	0.806
28 1,2-Dichloroethane	2.68199	2.75053	2.74818	2.82655	2.81908	2.76527	2.147
30 Benzene	1.43537	1.43397	1.45211	1.42255	1.43575	1.43595	0.734
31 Carbon Tetrachloride	0.35583	0.35728	0.35871	0.36313	0.36740	0.36047	1.315
34 1,2-Dichloropropane	0.38664	0.38497	0.39262	0.39181	0.39125	0.38946	0.878
35 Trichloroethene	0.32287	0.32073	0.32503	0.32801	0.32640	0.32461	0.885
37 Bromodichloromethane	0.44319	0.43773	0.43671	0.44976	0.44872	0.44322	1.361
39 2-Chloroethylvinylether	0.08185	0.08605	0.09305	0.10062	0.10424	0.09316	10.137
40 4-Methyl-2-Pentanone	0.66423	0.70332	0.71347	0.70841	0.67235	0.69236	3.242
41 cis-1,3-Dichloropropene	0.53353	0.53817	0.54637	0.55710	0.55961	0.54696	2.087
42 trans-1,3-Dichloropropene	0.47718	0.47459	0.48403	0.49488	0.50148	0.48643	2.365



## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 02-MAY-1995 08:20  
 End Cal Date : 02-MAY-1995 10:09  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/l.i/1950502.b/lvoclpw.m  
 Cal Date : 02-May-1995 12:35 jimmy  
 Curve Type : Average

Compound	50 Level 1	100 Level 2	250 Level 3	500 Level 4	1000 Level 5	RRF	% RSD
44 Toluene	0.97364	0.98226	1.00040	1.00583	0.99789	0.99200	1.360
45 1,1,2-Trichloroethane	0.26649	0.27347	0.26844	0.26731	0.26716	0.26858	1.052
46 2-Hexanone	0.73012	0.78507	0.85353	0.86654	0.80964	0.80898	6.796
47 Dibromochloromethane	0.30896	0.30152	0.30816	0.31520	0.32124	0.31102	2.409
49 Tetrachloroethene	0.38483	0.37675	0.37992	0.37393	0.37735	0.37856	1.084
52 Chlorobenzene	0.99206	0.99114	1.00706	1.00122	1.00558	0.99941	0.746
M 53 Xylene (Total)	0.62087	0.61750	0.63644	0.63397	0.63579	0.62891	1.432
54 Ethylbenzene	0.50369	0.50586	0.51839	0.52425	0.52378	0.51520	1.906
55 m,p-Xylene(s)	0.62893	0.61946	0.64133	0.64047	0.64189	0.63442	1.565
56 Bromoform	0.31406	0.29539	0.31041	0.31825	0.32211	0.31204	3.300
57 Styrene	0.86874	0.94132	1.02509	1.04868	1.06044	0.98886	8.263
59 o-Xylene	0.60474	0.61359	0.62664	0.62097	0.62359	0.61791	1.425
60 1,1,2,2-Tetrachloroethane	0.49941	0.48995	0.52208	0.50938	0.48460	0.50108	3.007
\$ 26 1,2-Dichloroethane-d4	0.41997	0.42049	0.41364	0.42322	0.42852	0.42117	1.283
\$ 43 Toluene-d8	1.42906	1.37537	1.39126	1.38068	1.38476	1.39222	1.537
\$ 61 Bromofluorobenzene	0.51077	0.50759	0.52461	0.52897	0.53300	0.52099	2.157

Data File: /chem/1.i/1950502.b/1122iw1.d  
Report Date: 02-May-1995 11:42

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/1122iw1.d

Lab Smp Id:

Inj Date : 02-MAY-1995 08:20

Operator : JC

Inst ID: 1.i

Smp Info : 10 UG-L STD-8240W/1X

Misc Info : L122W1//L122IW3

Comment :

Method : /chem/1.i/1950502.b/lvoclpw.m

Meth Date : 02-May-1995 11:42 jimmy

Quant Type: ISTD

Cal Date : 02-MAY-1995 09:14

Cal File: 1122iw3.d

Als bottle: 2

Calibration Sample, Level: 1

Oil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
1 Chloromethane	50.00	1.760	1.760	(0.337)	23768	50	47(a)
2 Vinyl Chloride	62.00	1.876	1.876	(0.359)	21701	50	53
3 Bromomethane	94.00	2.116	2.116	(0.406)	16884	50	52
4 Chloroethane	64.00	2.188	2.188	(0.419)	12767	50	49
7 Trichlorofluoromethane	101.00	2.535	2.535	(0.486)	11840	50	42
8 Acetone	58.00	2.598	2.598	(0.498)	4289	50	51(a)
11 1,1-Dichloroethene	96.00	2.990	2.990	(0.573)	14817	50	48
13 Methylene Chloride	84.00	3.239	3.239	(0.621)	18020	50	49
18 1,2-Dichloroethene (total)	96.00				39044	100	96
14 Carbon Disulfide	76.00	3.355	3.355	(0.643)	59546	50	48
15 trans-1,2-Dichloroethene	96.00	3.819	3.819	(0.732)	18651	50	48
17 1,1-Dichloroethane	63.00	4.149	4.149	(0.795)	38175	50	48
19 Vinyl Acetate	43.00	4.247	4.247	(0.814)	66411	50	51
20 2-Butanone	43.00	4.612	4.612	(0.884)	31558	50	52(a)
21 cis-1,2-Dichloroethene	96.00	4.951	4.951	(0.949)	20393	50	48
24 Chloroform	83.00	5.227	5.227	(1.002)	35579	50	50
27 1,1,1-Trichloroethane	97.00	6.012	6.012	(0.869)	25362	50	50
28 1,2-Dichloroethane	62.00	6.101	6.101	(1.169)	29172	50	48
30 Benzene	78.00	6.466	6.466	(0.934)	82263	50	50
31 Carbon Tetrachloride	117.00	6.484	6.484	(0.937)	20393	50	49
34 1,2-Dichloropropane	63.00	7.447	7.447	(1.076)	22159	50	50
35 Trichloroethene	130.00	7.482	7.482	(1.081)	18504	50	50
37 Bromodichloromethane	83.00	7.670	7.670	(1.108)	25400	50	50
39 2-Chloroethylvinylether	63.00	8.276	8.276	(1.196)	4691	50	44(a)
40 4-Methyl-2-Pentanone	43.00	8.499	8.499	(1.228)	38068	50	48
41 cis-1,3-Dichloropropene	75.00	8.534	8.534	(1.233)	30577	50	49
42 trans-1,3-Dichloropropene	75.00	9.158	9.158	(1.323)	27348	50	49
44 Toluene	92.00	9.247	9.247	(0.833)	43464	50	49
45 1,1,2-Trichloroethane	83.00	9.337	9.337	(1.349)	15273	50	50

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
42-Hexanone	43.00	9.702	9.702	(0.874)	32593	50	45 (a)
47 Dibromochloromethane	129.00	9.961	9.961	(1.439)	17707	50	50
49 Tetrachloroethene	164.00	10.308	10.308	(0.929)	17179	50	51
51 Chlorobenzene	112.00	11.146	11.146	(1.004)	44286	50	50
52 Xylene (Total)	106.00				83148	150	150
54 Ethylbenzene	106.00	11.449	11.449	(1.031)	22485	50	49
55 m,p-Xylene(s)	106.00	11.610	11.610	(1.046)	56152	100	99
58 Bromoform	173.00	12.029	12.029	(1.083)	14020	50	50
59 Styrene	104.00	12.082	12.082	(1.088)	38781	50	44
59 o-Xylene	106.00	12.136	12.136	(1.093)	26996	50	49
60 1,1,2,2-Tetrachloroethane	83.00	12.483	12.483	(1.124)	22294	50	50
2 Bromochloromethane	128.00	5.218	5.218	(1.000)	54385	250	
3 1,4-Difluorobenzene	114.00	6.921	6.921	(1.000)	286556	250	
50 Chlorobenzene-d5	117.00	11.101	11.101	(1.000)	223203	250	
2 1,2-Dichloroethane-d4	102.00	5.994	5.994	(1.149)	4568	50	50
4 Toluene-d8	98.00	9.149	9.149	(0.824)	63794	50	51
61 Bromofluorobenzene	95.00	12.777	12.777	(1.151)	22801	50	49

# Flag Legend

- Target compound detected but, quantitated amount  
 Below Limit Of Quantitation (BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1122iw1.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Misc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914  
  
Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	57465	28732	114930	54385	-5.36
32 1,4-Difluorobenzene	309137	154568	618274	286556	-7.30
50 Chlorobenzene-d5	240326	120163	480652	223203	-7.12

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.22	0.02
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.92	0.02
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.01

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950502.b/11221w1.d

Date : 02-MAY-1995 08:20

Client ID:

Sample Info: 10 UG-L STD-82404/1X

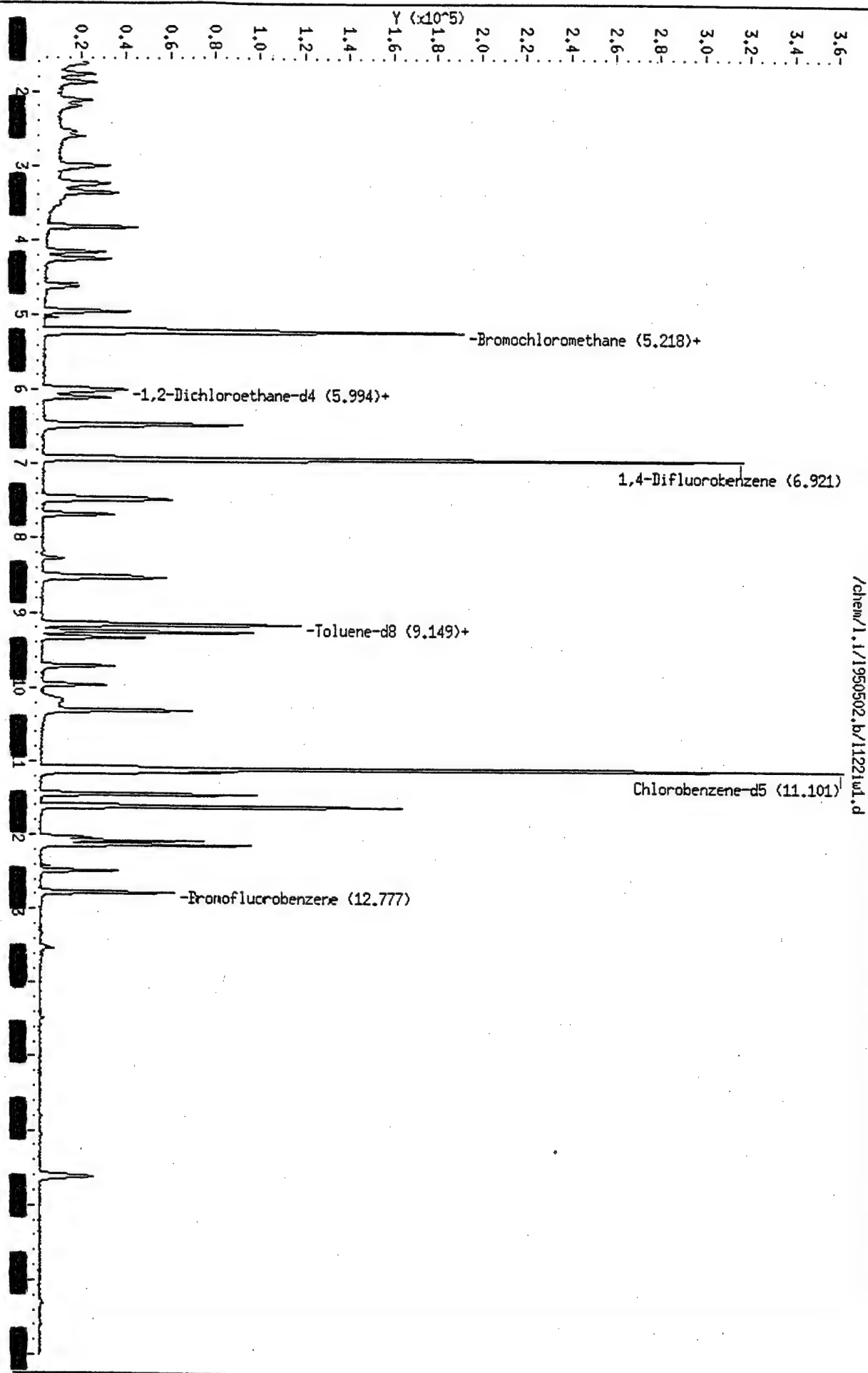
Purge Volume: 5.0

Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25



Data File: /chem/1.i/1950502.b/l122iw2.d  
Report Date: 02-May-1995 11:42

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SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/l122iw2.d

Lab Smp Id:

Inj Date : 02-MAY-1995 08:47

Operator : JC

Inst ID: 1.i

Smp Info : 20 UG-L STD-8240W/1X

Misc Info : L122W1//L122IW3

Comment :

Method : /chem/1.i/1950502.b/lvoclpw.m

Method Date : 02-May-1995 11:42 jimmy

Quant Type: ISTD

Cal Date : 02-MAY-1995 09:14

Cal File: l122iw3.d

als bottle: 3

Calibration Sample, Level: 2

Oil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
1 Chloromethane	50.00	1.764	1.764	(0.338)	55117	100	100
2 Vinyl Chloride	62.00	1.880	1.880	(0.361)	46635	100	110
3 Bromomethane	94.00	2.112	2.112	(0.405)	34888	100	100
4 Chloroethane	64.00	2.183	2.183	(0.419)	27714	100	100
7 Trichlorofluoromethane	101.00	2.531	2.531	(0.485)	24925	100	84
8 Acetone	58.00	2.593	2.593	(0.497)	8508	100	97(a)
11 1,1-Dichloroethene	96.00	2.994	2.994	(0.574)	32109	100	99
13 Methylene Chloride	84.00	3.235	3.235	(0.620)	38766	100	100
18 1,2-Dichloroethene (total)	96.00				83520	200	200
14 Carbon Disulfide	76.00	3.360	3.360	(0.644)	128131	100	98
15 trans-1,2-Dichloroethene	96.00	3.814	3.814	(0.732)	40318	100	99
17 1,1-Dichloroethane	63.00	4.153	4.153	(0.797)	81726	100	98
19 Vinyl Acetate	43.00	4.251	4.251	(0.815)	137781	100	100
20 2-Butanone	43.00	4.617	4.617	(0.885)	63957	100	100
21 cis-1,2-Dichloroethene	96.00	4.955	4.955	(0.950)	43202	100	96
24 Chloroform	83.00	5.232	5.232	(1.003)	73462	100	98
27 1,1,1-Trichloroethane	97.00	6.016	6.016	(0.869)	54178	100	100
28 1,2-Dichloroethane	62.00	6.105	6.105	(1.171)	62809	100	99
30 Benzene	78.00	6.462	6.462	(0.933)	175650	100	100
31 Carbon Tetrachloride	117.00	6.489	6.489	(0.937)	43764	100	99
34 1,2-Dichloropropane	63.00	7.451	7.451	(1.076)	47156	100	99
35 Trichloroethene	130.00	7.478	7.478	(1.080)	39287	100	99
37 Bromodichloromethane	83.00	7.674	7.674	(1.108)	53619	100	99
39 2-Chloroethylvinylether	63.00	8.271	8.271	(1.194)	10541	100	92
40 4-Methyl-2-Pentanone	43.00	8.503	8.503	(1.228)	86151	100	100
41 cis-1,3-Dichloropropene	75.00	8.539	8.539	(1.233)	65921	100	98
42 trans-1,3-Dichloropropene	75.00	9.163	9.163	(1.323)	58133	100	98
44 Toluene	92.00	9.252	9.252	(0.834)	95391	100	99
45 1,1,2-Trichloroethane	83.00	9.332	9.332	(1.348)	33498	100	100

pounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
2-Hexanone	43.00	9.707	9.707	(0.875)	76241	100	97
Dibromochloromethane	129.00	9.956	9.956	(1.438)	36934	100	97
49 Tetrachloroethene	164.00	10.304	10.304	(0.928)	36588	100	100
52 Chlorobenzene	112.00	11.142	11.142	(1.004)	96253	100	99
Xylene (Total)	106.00				179904	300	290
Ethylbenzene	106.00	11.445	11.445	(1.031)	49126	100	98
55 m,p-Xylene(s)	106.00	11.614	11.614	(1.047)	120316	200	200
Bromoform	173.00	12.033	12.033	(1.084)	28686	100	95
Styrene	104.00	12.078	12.078	(1.088)	91415	100	95
59 o-Xylene	106.00	12.140	12.140	(1.094)	59588	100	99
60 1,1,2,2-Tetrachloroethane	83.00	12.488	12.488	(1.125)	47581	100	98
Bromochloromethane	128.00	5.214	5.214	(1.000)	57088	250	
1,4-Difluorobenzene	114.00	6.925	6.925	(1.000)	306230	250	
50 Chlorobenzene-d5	117.00	11.097	11.097	(1.000)	242784	250	
26 1,2-Dichloroethane-d4	102.00	5.989	5.989	(1.149)	9602	100	100
Toluene-d8	98.00	9.145	9.145	(0.824)	133567	100	99
Bromofluorobenzene	95.00	12.773	12.773	(1.151)	49294	100	97

# Flag Legend

- Target compound detected but, quantitated amount  
 Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1122iw2.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Misc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	57465	28732	114930	57088	-0.66
32 1,4-Difluorobenzene	309137	154568	618274	306230	-0.94
50 Chlorobenzene-d5	240326	120163	480652	242784	1.02

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.21	-0.06
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.93	0.08
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950502.b/11221w2.d

Date : 02-MAY-1995 08:47

Client ID:

Sample Info: 20 UG-L STD-8240M/1X

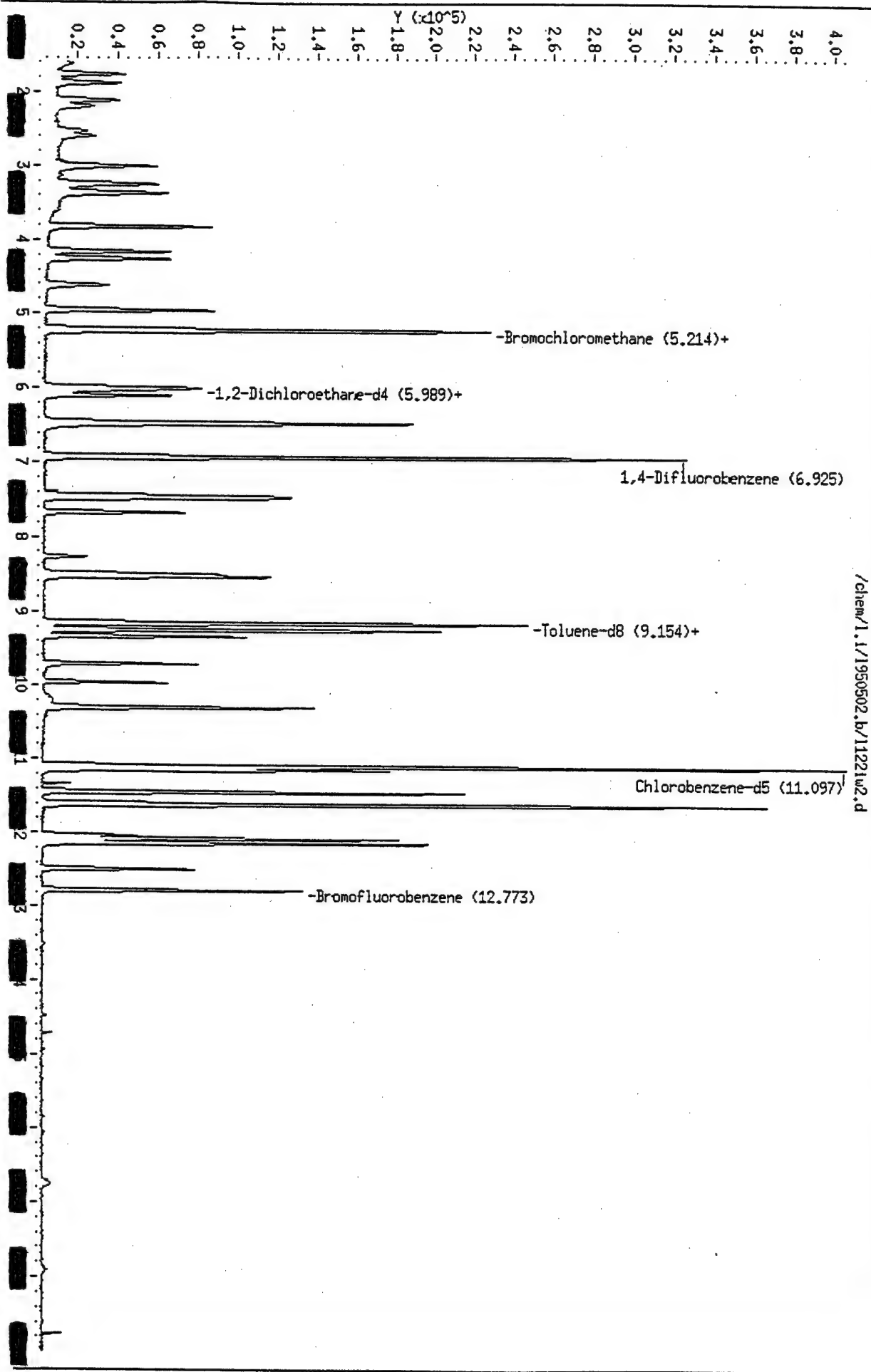
Purge Volume: 5.0

Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25



Data File: /chem/1.i/1950502.b/1122iw3.d  
Report Date: 02-May-1995 11:42

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SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/1122iw3.d  
Lab Smp Id:   
Inj Date : 02-MAY-1995 09:14  
Operator : JC  
Smp Info : 50 UG-L STD-8240W/1X  
Misc Info : L122W1//L122IW3  
Comment :   
Method : /chem/1.i/1950502.b/lvoclpw.m  
Meth Date : 02-May-1995 11:42 jimmy  
Cal Date : 02-MAY-1995 09:14  
Als bottle: 4  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: 1.i

Quant Type: ISTD  
Cal File: 1122iw3.d  
Calibration Sample, Level: 3

Compound Sublist: normal.sub

Compounds	QUANT SIG	AMOUNTS						
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
							( ng)	( ng)
-----	----	--	-----	-----	-----	-----	-----	
1 Chloromethane	50.00	1.776	1.776	(0.340)	134614	250	250	
2 Vinyl Chloride	62.00	1.883	1.883	(0.361)	113403	250	260	
3 Bromomethane	94.00	2.115	2.115	(0.405)	85062	250	250	
4 Chloroethane	64.00	2.195	2.195	(0.421)	70076	250	250	
7 Trichlorofluoromethane	101.00	2.534	2.534	(0.486)	70553	250	240	
8 Acetone	58.00	2.597	2.597	(0.498)	21213	250	240 (a)	
11 1,1-Dichloroethene	96.00	2.998	2.998	(0.575)	81537	250	250	
13 Methylene Chloride	84.00	3.238	3.238	(0.621)	98115	250	250	
18 1,2-Dichloroethene (total)	96.00				214604	500	500	
14 Carbon Disulfide	76.00	3.363	3.363	(0.645)	327683	250	250	
15 trans-1,2-Dichloroethene	96.00	3.818	3.818	(0.732)	101544	250	250	
17 1,1-Dichloroethane	63.00	4.156	4.156	(0.797)	207621	250	250	
19 Vinyl Acetate	43.00	4.246	4.246	(0.814)	346597	250	250	
20 2-Butanone	43.00	4.611	4.611	(0.884)	163606	250	260	
21 cis-1,2-Dichloroethene	96.00	4.959	4.959	(0.950)	113060	250	250	
24 Chloroform	83.00	5.235	5.235	(1.003)	186297	250	250	
27 1,1,1-Trichloroethane	97.00	6.019	6.019	(0.870)	137715	250	250	
28 1,2-Dichloroethane	62.00	6.100	6.100	(1.169)	157924	250	250	
30 Benzene	78.00	6.465	6.465	(0.934)	448900	250	250	
31 Carbon Tetrachloride	117.00	6.492	6.492	(0.938)	110889	250	250	
34 1,2-Dichloropropane	63.00	7.446	7.446	(1.076)	121374	250	250	
35 Trichloroethene	130.00	7.481	7.481	(1.081)	100479	250	250	
37 Bromodichloromethane	83.00	7.677	7.677	(1.109)	135002	250	250	
39 2-Chloroethylvinylether	63.00	8.275	8.275	(1.196)	28765	250	250	
40 4-Methyl-2-Pentanone	43.00	8.498	8.498	(1.228)	220559	250	260	
41 cis-1,3-Dichloropropene	75.00	8.533	8.533	(1.233)	168904	250	250	
42 trans-1,3-Dichloropropene	75.00	9.166	9.166	(1.325)	149633	250	250	
44 Toluene	92.00	9.246	9.246	(0.833)	240421	250	250	
45 1,1,2-Trichloroethane	83.00	9.327	9.327	(1.348)	82986	250	250	

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
5 2-Hexanone	43.00	9.701	9.701	(0.874)	205126	250	260
7 Dibromochloromethane	129.00	9.959	9.959	(1.439)	95265	250	250
49 Tetrachloroethene	164.00	10.307	10.307	(0.929)	91305	250	250
2 Chlorobenzene	112.00	11.145	11.145	(1.004)	242022	250	250
3 Xylene (Total)	106.00				458856	750	760
54 Ethylbenzene	106.00	11.448	11.448	(1.031)	124583	250	250
55 m,p-Xylene(s)	106.00	11.609	11.609	(1.046)	308258	500	500
5 Bromoform	173.00	12.027	12.027	(1.083)	74600	250	250
7 Styrene	104.00	12.081	12.081	(1.088)	246356	250	260
59 o-Xylene	106.00	12.134	12.134	(1.093)	150598	250	250
60 1,1,2,2-Tetrachloroethane	83.00	12.482	12.482	(1.124)	125470	250	260
Bromochloromethane	128.00	5.217	5.217	(1.000)	57465	250	
1,4-Difluorobenzene	114.00	6.920	6.920	(1.000)	309137	250	
50 Chlorobenzene-d5	117.00	11.100	11.100	(1.000)	240326	250	
26 1,2-Dichloroethane-d4	102.00	5.993	5.993	(1.149)	23770	250	240
Toluene-d8	98.00	9.148	9.148	(0.824)	334357	250	250
61 Bromofluorobenzene	95.00	12.776	12.776	(1.151)	126078	250	250

# Flag Legend

- Target compound detected but, quantitated amount  
 Below Limit Of Quantitation (BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: l122iw3.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Misc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	57465	28732	114930	57465	0.00
32 1,4-Difluorobenzene	309137	154568	618274	309137	0.00
50 Chlorobenzene-d5	240326	120163	480652	240326	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.22	0.00
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.92	0.00
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950502.b/11221w3.d  
Date : 02-MAY-1995 09:14

Client ID:

Sample Info: 50 UG-L STD-8240W/1X

Purge Volume: 5.0

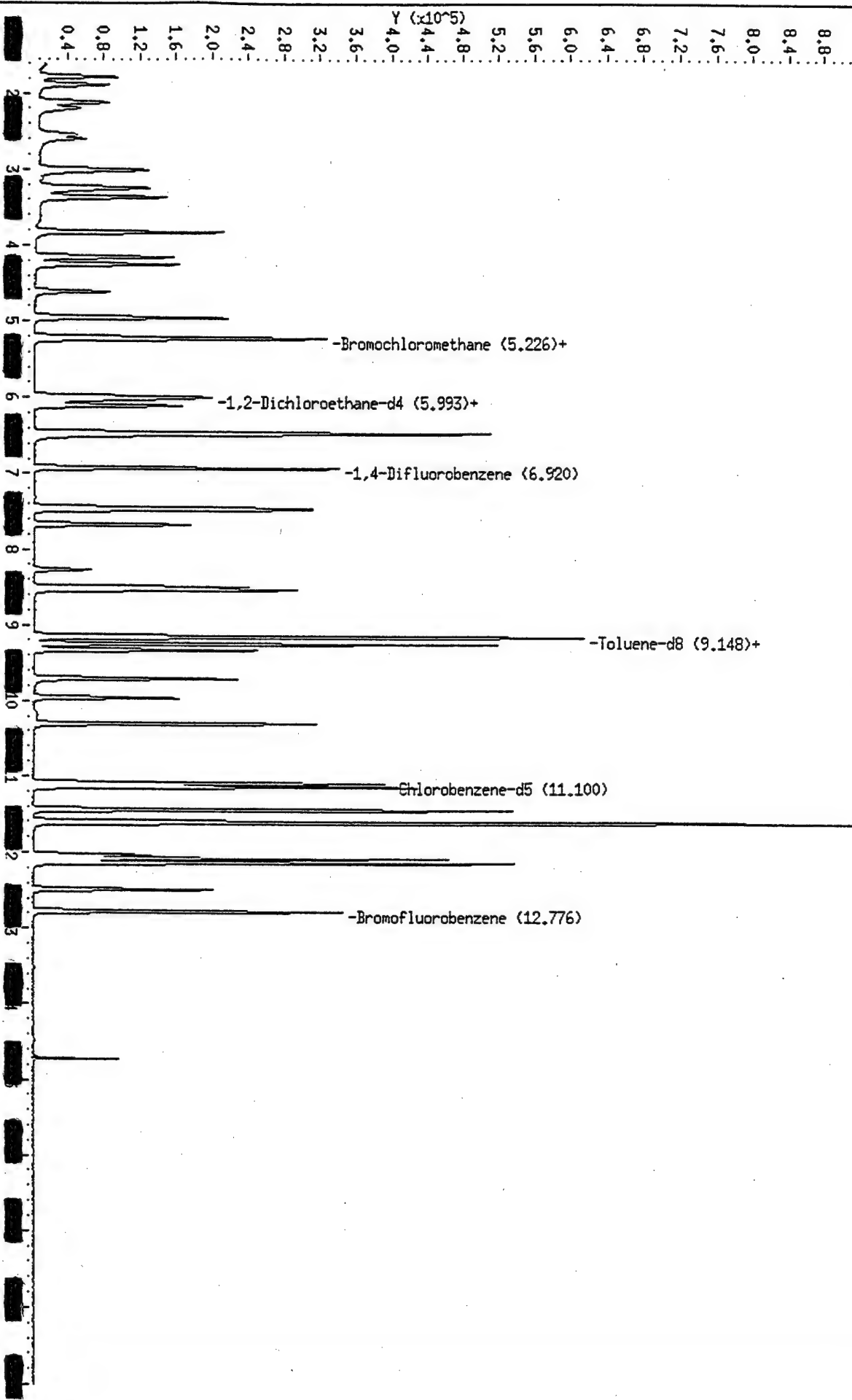
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950502.b/11221w3.d



Data File: /chem/1.i/1950502.b/l122iw4.d  
Report Date: 02-May-1995 11:42

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/l122iw4.d

Lab Smp Id:

Inj Date : 02-MAY-1995 09:41

Operator : JC

Inst ID: 1.i

Smp Info : 100 UG-L STD-8240W/1X

Misc Info : L122W1//L122IW3

Comment :

Method : /chem/1.i/1950502.b/lvoclpw.m

Meth Date : 02-May-1995 11:42 jimmy

Quant Type: ISTD

Cal Date : 02-MAY-1995 09:14

Cal File: l122iw3.d

Als bottle: 5

Calibration Sample, Level: 4

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
1 Chloromethane	50.00	1.776	1.776	(0.340)	267462	500	510
2 Vinyl Chloride	62.00	1.892	1.892	(0.362)	208127	500	480
3 Bromomethane	94.00	2.124	2.124	(0.406)	167228	500	490
4 Chloroethane	64.00	2.195	2.195	(0.420)	139918	500	510
7 Trichlorofluoromethane	101.00	2.552	2.552	(0.488)	155830	500	530
8 Acetone	58.00	2.605	2.605	(0.498)	46123	500	530
11 1,1-Dichloroethene	96.00	3.006	3.006	(0.575)	165619	500	510
13 Methylene Chloride	84.00	3.247	3.247	(0.621)	195418	500	500
18 1,2-Dichloroethene (total)	96.00				435758	1000	1000
14 Carbon Disulfide	76.00	3.372	3.372	(0.645)	666785	500	510
15 trans-1,2-Dichloroethene	96.00	3.826	3.826	(0.732)	205612	500	510
17 1,1-Dichloroethane	63.00	4.165	4.165	(0.797)	422429	500	510
19 Vinyl Acetate	43.00	4.254	4.254	(0.814)	656801	500	480
20 2-Butanone	43.00	4.620	4.620	(0.884)	311290	500	490
21 cis-1,2-Dichloroethene	96.00	4.967	4.967	(0.951)	230146	500	510
24 Chloroform	83.00	5.244	5.244	(1.003)	377481	500	500
27 1,1,1-Trichloroethane	97.00	6.028	6.028	(0.870)	274410	500	490
28 1,2-Dichloroethane	62.00	6.108	6.108	(1.169)	322441	500	510
30 Benzene	78.00	6.474	6.474	(0.934)	891151	500	500
31 Carbon Tetrachloride	117.00	6.492	6.492	(0.937)	227482	500	500
34 1,2-Dichloropropane	63.00	7.454	7.454	(1.076)	245448	500	500
35 Trichloroethene	130.00	7.490	7.490	(1.081)	205482	500	500
37 Bromodichloromethane	83.00	7.677	7.677	(1.108)	281748	500	510
39 2-Chloroethylvinylether	63.00	8.274	8.274	(1.194)	63033	500	540
40 4-Methyl-2-Pentanone	43.00	8.497	8.497	(1.226)	443781	500	510
41 cis-1,3-Dichloropropene	75.00	8.542	8.542	(1.233)	348996	500	510
42 trans-1,3-Dichloropropene	75.00	9.166	9.166	(1.323)	310015	500	510
44 Toluene	92.00	9.255	9.255	(0.834)	495230	500	510
45 1,1,2-Trichloroethane	83.00	9.335	9.335	(1.347)	167456	500	500

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
2-Hexanone	43.00	9.701	9.701	(0.874)	426649	500	540
Dibromochloromethane	129.00	9.959	9.959	(1.437)	197453	500	510
49 Tetrachloroethene	164.00	10.307	10.307	(0.929)	184108	500	490
52 Chlorobenzene	112.00	11.145	11.145	(1.004)	492961	500	500
Xylene (Total)	106.00				936418	1500	1500
Ethylbenzene	106.00	11.448	11.448	(1.031)	258120	500	510
55 m,p-Xylene(s)	106.00	11.617	11.617	(1.047)	630678	1000	1000
Bromoform	173.00	12.036	12.036	(1.084)	156693	500	510
Styrene	104.00	12.081	12.081	(1.088)	516328	500	530
59 o-Xylene	106.00	12.134	12.134	(1.093)	305740	500	500
60 1,1,2,2-Tetrachloroethane	83.00	12.482	12.482	(1.124)	250796	500	510
Bromochloromethane	128.00	5.226	5.226	(1.000)	57038	250	
1,4-Difluorobenzene	114.00	6.928	6.928	(1.000)	313223	250	
50 Chlorobenzene-d5	117.00	11.100	11.100	(1.000)	246179	250	
26 1,2-Dichloroethane-d4	102.00	5.992	5.992	(1.147)	48279	500	500
Toluene-d8	98.00	9.148	9.148	(0.824)	679788	500	500
Bromofluorobenzene	95.00	12.776	12.776	(1.151)	260441	500	510

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: l122iw4.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Disc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	57465	28732	114930	57038	-0.74
32 1,4-Difluorobenzene	309137	154568	618274	313223	1.32
50 Chlorobenzene-d5	240326	120163	480652	246179	2.44

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.23	0.16
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.93	0.12
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950502.b/11221w4.d

Date : 02-MAY-1995 09:41

Client ID:

Sample Info: 100 UG-L STD-8240U/1X

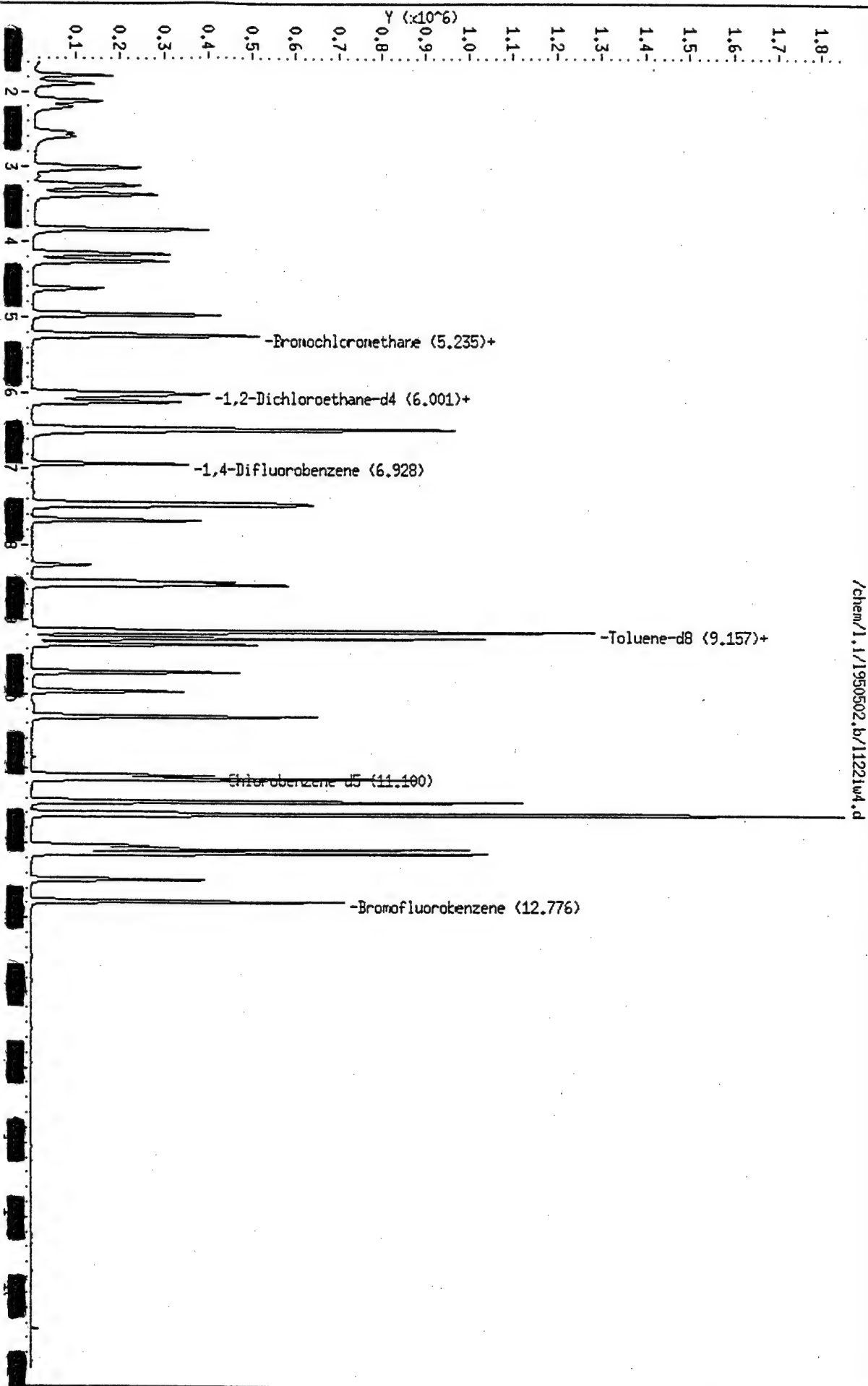
Purge Volume: 5.0

Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25



SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/l122iw5.d

Lab Smp Id:

Inj Date : 02-MAY-1995 10:09

Operator : JC

Inst ID: 1.i

Smp Info : 200 UG-L STD-8240W/1X

Misc Info : L122W1//L122IW3

Comment :

Method : /chem/1.i/1950502.b/lvoclpw.m

Meth Date : 02-May-1995 11:43 jimmy

Quant Type: ISTD

Cal Date : 02-MAY-1995 09:14

Cal File: l122iw3.d

Als bottle: 6

Calibration Sample, Level: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG			RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
	MASS							CAL-AMT	ON-COL
								( ng)	( ng)
1 Chloromethane	50.00			1.774	1.774	(0.340)	496676	1000	980
2 Vinyl Chloride	62.00			1.881	1.881	(0.360)	359637	1000	870
3 Bromomethane	94.00			2.122	2.122	(0.406)	312858	1000	960
4 Chloroethane	64.00			2.185	2.185	(0.418)	259806	1000	990
7 Trichlorofluoromethane	101.00			2.550	2.550	(0.488)	371395	1000	1300 (A)
8 Acetone	58.00			2.603	2.603	(0.498)	82078	1000	980
11 1,1-Dichloroethene	96.00			2.996	2.996	(0.573)	324057	1000	1000
13 Methylene Chloride	84.00			3.236	3.236	(0.619)	375020	1000	1000
18 1,2-Dichloroethene (total)	96.00						848211	2000	2100 (A)
14 Carbon Disulfide	76.00			3.361	3.361	(0.643)	1294538	1000	1000
15 trans-1,2-Dichloroethene	96.00			3.825	3.825	(0.732)	399994	1000	1000
17 1,1-Dichloroethane	63.00			4.154	4.154	(0.795)	827354	1000	1000
19 Vinyl Acetate	43.00			4.253	4.253	(0.814)	1250896	1000	960
20 2-Butanone	43.00			4.609	4.609	(0.882)	561725	1000	930
21 cis-1,2-Dichloroethene	96.00			4.957	4.957	(0.949)	448217	1000	1000
24 Chloroform	83.00			5.233	5.233	(1.002)	734283	1000	1000
27 1,1,1-Trichloroethane	97.00			6.018	6.018	(0.869)	543601	1000	1000
28 1,2-Dichloroethane	62.00			6.107	6.107	(1.169)	615902	1000	1000
30 Benzene	78.00			6.463	6.463	(0.933)	1744305	1000	1000
31 Carbon Tetrachloride	117.00			6.490	6.490	(0.937)	446359	1000	1000
34 1,2-Dichloropropane	63.00			7.453	7.453	(1.076)	475338	1000	1000
35 Trichloroethene	130.00			7.479	7.479	(1.080)	396546	1000	1000
37 Bromodichloromethane	83.00			7.676	7.676	(1.108)	545152	1000	1000
39 2-Chloroethylvinylether	63.00			8.273	8.273	(1.194)	126639	1000	1100
40 4-Methyl-2-Pentanone	43.00			8.496	8.496	(1.226)	816847	1000	970
41 cis-1,3-Dichloropropene	75.00			8.540	8.540	(1.233)	679880	1000	1000
42 trans-1,3-Dichloropropene	75.00			9.164	9.164	(1.323)	609260	1000	1000
44 Toluene	92.00			9.253	9.253	(0.834)	963192	1000	1000
45 1,1,1,2-Trichloroethane	83.00			9.333	9.333	(1.347)	324579	1000	990

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
2-Hexanone	43.00	9.699	9.699	(0.874)	781487	1000	1000
Dibromochloromethane	129.00	9.957	9.957	(1.438)	390277	1000	1000
Tetrachloroethene	164.00	10.305	10.305	(0.929)	364233	1000	1000
Chlorobenzene	112.00	11.143	11.143	(1.004)	970622	1000	1000
Xylene (Total)	106.00				1841062	3000	3000
Ethylbenzene	106.00	11.446	11.446	(1.031)	505573	1000	1000
m,p-Xylene(s)	106.00	11.615	11.615	(1.047)	1239149	2000	2000
Bromoform	173.00	12.034	12.034	(1.084)	310911	1000	1000
Styrene	104.00	12.079	12.079	(1.088)	1023574	1000	1100
o-Xylene	106.00	12.141	12.141	(1.094)	601913	1000	1000
1,1,2,2-Tetrachloroethane	83.00	12.480	12.480	(1.124)	467749	1000	970
Bromochloromethane	128.00	5.224	5.224	(1.000)	54619	250	
1,4-Difluorobenzene	114.00	6.927	6.927	(1.000)	303728	250	
Chlorobenzene-d5	117.00	11.098	11.098	(1.000)	241308	250	
1,2-Dichloroethane-d4	102.00	5.991	5.991	(1.147)	93621	1000	1000(A)
Toluene-d8	98.00	9.146	9.146	(0.824)	1336610	1000	990
Bromofluorobenzene	95.00	12.774	12.774	(1.151)	514468	1000	1000(A)

Flag Legend

- Target compound detected but, quantitated amount exceeded maximum amount.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1122iw5.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Misc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914  
Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	57465	28732	114930	54619	-4.95
32 1,4-Difluorobenzene	309137	154568	618274	303728	-1.75
50 Chlorobenzene-d5	240326	120163	480652	241308	0.41

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.22	0.13
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.93	0.10
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.02

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950502.b/11221w5.d  
Date : 02-MAY-1995 10:09

Client ID:

Sample Info: 200 UG-L STD-8240M/1X

Purge Volume: 5.0

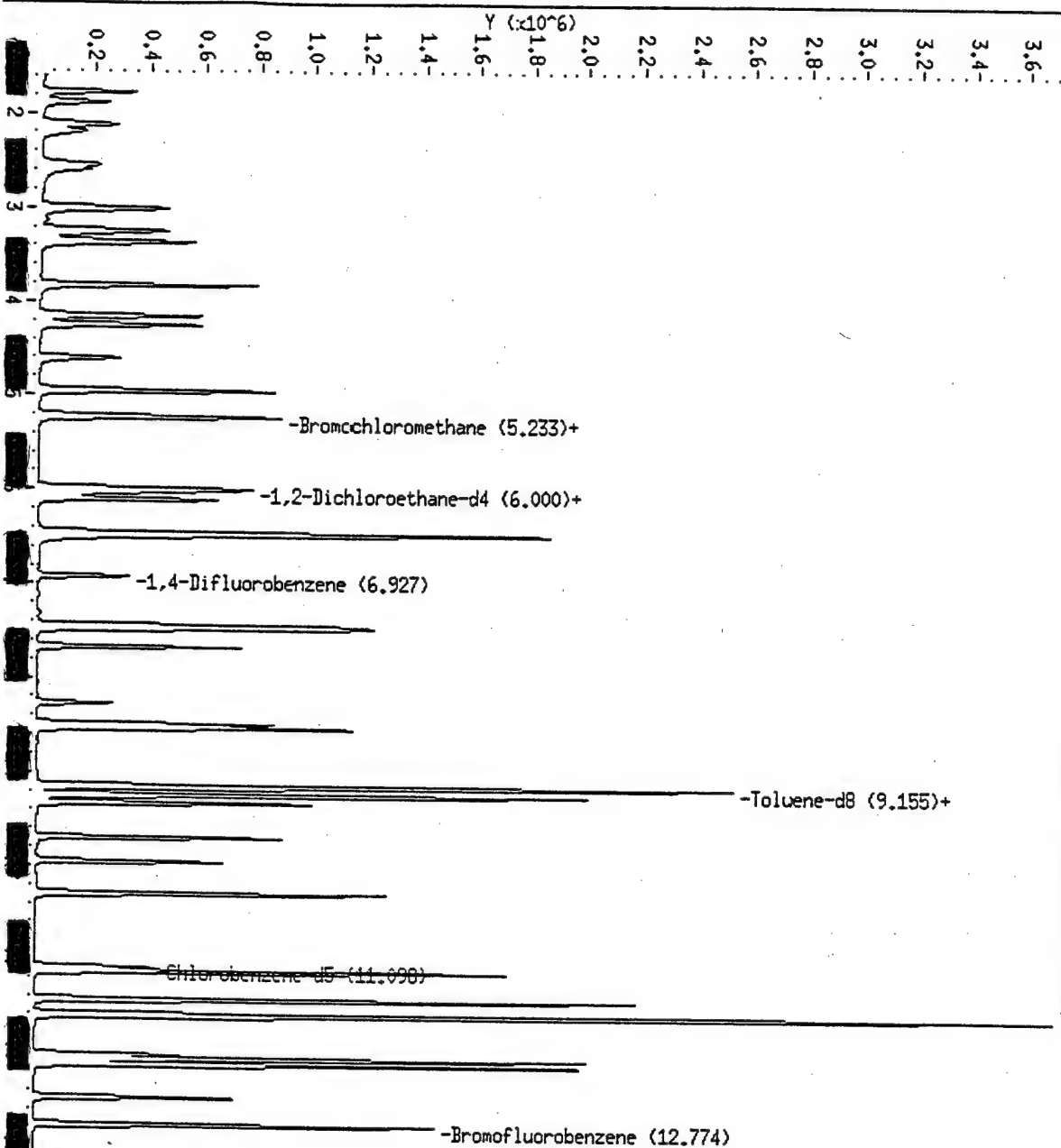
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950502.b/11221w5.d



SPL Houston Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: j.i      Injection Date: 09-MAY-1995 08:09  
Lab File ID: j129cc1.d      Init. Calibration Date(s): 05/03/95 05/03/95  
Analysis Type: WATER      Init. Calibration Times: 13:54 13:54  
Lab Sample ID:      Method File: /chem/j.i/j950509.b/jclpw.m  
Quant Type: ISTD

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
2 Pyridine	2.622	2.559	0.010	2.4	40.0
5 Phenol	3.057	2.794	0.800	8.6	25.0
6 Aniline	2.804	3.273	0.010	16.7	40.0
7 bis(2-Chloroethyl)ether	2.312	2.509	0.700	8.5	25.0
9 2-Chlorophenol	1.582	1.389	0.800	12.2	25.0
10 1,3-Dichlorobenzene	1.319	1.333	0.600	1.1	25.0
12 1,4-Dichlorobenzene	1.637	1.789	0.500	9.3	25.0
13 Benzyl alcohol	0.299	0.274	0.010	8.4	40.0
15 1,2-Dichlorobenzene	1.963	2.056	0.400	4.7	25.0
16 2-Methylphenol	2.551	3.485	0.700	36.6	25.0 <-
18 bis(2-chloroisopropyl)ether	3.284	3.822	0.010	16.4	40.0
19 4-Methylphenol	2.663	3.295	0.600	23.7	25.0
21 N-Nitroso-di-n-propylamine	2.311	2.587	0.500	11.9	25.0
22 Hexachloroethane	1.000	1.194	0.300	19.4	25.0
24 Nitrobenzene	0.372	0.370	0.200	0.6	25.0
25 Isophorone	0.914	0.957	0.400	4.8	25.0
26 2-Nitrophenol	0.209	0.204	0.100	2.5	25.0
27 2,4-Dimethylphenol	0.350	0.390	0.200	11.5	25.0
28 Benzoic acid	0.123	0.223	0.010	81.7	100.0
29 bis(2-Chloroethoxy)methane	0.451	0.445	0.300	1.4	25.0
30 2,4-Dichlorophenol	0.315	0.309	0.200	2.1	25.0
31 1,2,4-Trichlorobenzene	0.332	0.341	0.200	2.7	25.0
33 Naphthalene	1.012	1.046	0.700	3.4	25.0
34 4-Chloroaniline	0.398	0.439	0.010	10.3	40.0
35 Hexachlorobutadiene	0.174	0.187	0.010	7.3	40.0
36 4-Chloro-3-methylphenol	0.330	0.371	0.200	12.4	25.0
37 2-Methylnaphthalene	0.797	0.822	0.400	3.2	25.0
38 Hexachlorocyclopentadiene	0.229	0.170	0.010	25.7	40.0
39 2,4,6-Trichlorophenol	0.365	0.344	0.200	5.7	25.0
40 2,4,5-Trichlorophenol	0.381	0.420	0.200	10.0	25.0
42 2-Chloronaphthalene	1.128	1.141	0.800	1.2	25.0
43 2-Nitroaniline	0.398	0.405	0.010	1.7	40.0
44 Dimethylphthalate	1.383	1.525	0.010	10.3	40.0
45 2,6-Dinitrotoluene	0.336	0.350	0.200	4.2	25.0
46 Acenaphthylene	1.886	1.906	1.300	1.1	25.0
47 3-Nitroaniline	0.346	0.338	0.010	2.3	40.0
49 Acenaphthene	1.116	1.135	0.800	1.7	25.0
50 2,4-Dinitrophenol	0.119	0.112	0.010	5.9	40.0
51 4-Nitrophenol	0.101	0.146	0.010	44.4	100.0
52 Dibenzofuran	1.690	1.710	0.800	1.1	25.0

SPL Houston Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: j.i  
Lab File ID: j129cc1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 09-MAY-1995 08:09  
Init. Calibration Date(s): 05/03/95 05/03/95  
Init. Calibration Times: 13:54 13:54  
Method File: /chem/j.i/j950509.b/jclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
53 2,4-Dinitrotoluene	0.442	0.461	0.200	4.3	25.0
54 Diethylphthalate	1.194	1.251	0.010	4.7	40.0
55 4-Chlorophenyl-phenylether	0.632	0.665	0.400	5.4	25.0
56 Fluorene	1.336	1.397	0.900	4.5	25.0
57 4-Nitroaniline	0.319	0.338	0.010	6.0	40.0
58 4,6-Dinitro-2-methylphenol	0.123	0.119	0.010	3.2	40.0
59 n-Nitrosodiphenylamine	0.549	0.554	0.010	1.0	40.0
60 1,2-Diphenylhydrazine	2.286	2.203	0.010	3.6	40.0
62 4-Bromophenyl-phenylether	0.231	0.235	0.100	1.7	25.0
63 Hexachlorobenzene	0.265	0.258	0.100	2.7	25.0
64 Pentachlorophenol	0.092	0.128	0.050	39.0	25.0 <-
66 Phenanthrene	1.410	1.390	0.700	1.4	25.0
67 Anthracene	1.214	1.214	0.700	0.0	25.0
68 Carbazole	1.113	1.093	0.010	1.8	40.0
69 Di-n-butylphthalate	1.370	1.387	0.010	1.3	40.0
70 Fluoranthene	1.192	1.198	0.600	0.5	25.0
71 Pyrene	1.561	1.366	0.600	12.5	25.0
73 Butylbenzylphthalate	0.774	0.725	0.010	6.4	40.0
74 3,3'-Dichlorobenzidine	0.431	0.450	0.010	4.5	40.0
75 Benzo[a]anthracene	1.294	1.295	0.800	0.1	25.0
77 Chrysene	1.080	1.144	0.700	6.0	25.0
78 bis(2-Ethylhexyl)phthalate	0.820	0.874	0.010	6.6	40.0
79 Di-n-octylphthalate	2.622	2.393	0.010	8.7	40.0
80 Benzo[b]fluoranthene	2.008	1.724	0.700	14.1	25.0
81 Benzo[k]fluoranthene	1.898	1.868	0.700	1.6	25.0
82 Benzo[a]pyrene	1.642	1.603	0.700	2.4	25.0
84 Indeno[1,2,3-cd]pyrene	1.502	1.548	0.500	3.0	25.0
85 Dibenz[a,h]anthracene	1.265	1.319	0.400	4.3	25.0
86 Benzo[g,h,i]perylene	1.222	1.195	0.500	2.2	25.0
\$ 23 Nitrobenzene-d5	0.369	0.346	0.200	6.2	25.0
\$ 41 2-Fluorobiphenyl	1.276	1.281	0.700	0.4	25.0
\$ 72 Terphenyl-d14	1.044	0.933	0.500	10.7	25.0
\$ 4 Phenol-d5	2.693	2.223	0.800	17.4	25.0
\$ 3 2-Fluorophenol	0.777	0.820	0.600	5.6	25.0
\$ 61 2,4,6-Tribromophenol	0.128	0.123	0.010	3.5	40.0
96 Benzidine	0.332	0.135	0.010	59.3	100.0

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129cs2.d

Lab Smp Id: 50 PPB STD 8240S

Inj Date : 09-MAY-1995 11:08

Operator : HLW

Inst ID: k.i

Smp Info : 50 PPB STD 8240S

Misc Info :

Comment :

Method : /chem/k.i/k950509.b/kvoclp.m

Meth Date : 09-May-1995 11:38 hillery

Quant Type: ISTD

Cal Date : 09-MAY-1995 11:08

Cal File: k129cs2.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Compound Sublist: normal.sub

Compounds	QUANT	SIG					CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	ON-COLUMN	FINAL
							( ng)	(ug/Kg)
4 Chloromethane	50.00		1.365	1.365	(0.643)	248975	250	50
5 Vinyl Chloride	62.00		1.395	1.395	(0.657)	245411	250	50
7 Bromomethane	94.00		1.441	1.441	(0.679)	164865	250	50
6 Chloroethane	64.00		1.441	1.441	(0.679)	206967	250	50
9 Trichlorofluoromethane	100.90		1.517	1.517	(0.714)	126075	250	50
8 Acetone	58.00		1.517	1.517	(0.714)	12488	250	50 (a)
10 1,1-Dichloroethene	96.00		1.623	1.623	(0.764)	164166	250	50
11 Methylene Chloride	84.00		1.668	1.668	(0.786)	185629	250	50
M 1 1,2-Dichloroethene (total)	96.00					408080	500	100
12 Carbon Disulfide	76.00		1.714	1.714	(0.807)	639149	250	50
13 trans-1,2-Dichloroethene	96.00		1.774	1.774	(0.836)	190950	250	50
14 1,1-Dichloroethane	63.00		1.850	1.850	(0.872)	415024	250	50
16 Vinyl Acetate	43.00		1.865	1.865	(0.879)	279989	250	50
17 2-Butanone	43.00		1.956	1.956	(0.921)	92900	250	50
19 cis-1,2-Dichloroethene	96.00		2.047	2.047	(0.964)	217130	250	50
21 Chloroform	83.00		2.123	2.123	(1.000)	336741	250	50
24 1,1,1-Trichloroethane	97.00		2.395	2.395	(1.128)	251956	250	50
25 1,2-Dichloroethane	62.00		2.411	2.411	(0.864)	233295	250	50
27 Benzene	78.00		2.547	2.547	(0.913)	805173	250	50
28 Carbon Tetrachloride	117.00		2.577	2.577	(0.924)	193109	250	50
33 1,2-Dichloropropane	63.00		3.077	3.077	(1.103)	224444	250	50
34 Trichloroethene	130.00		3.092	3.092	(1.109)	184595	250	50
35 Bromodichloromethane	83.00		3.214	3.214	(1.152)	239054	250	50
15 2-Chloroethylvinylether	63.00		1.850	1.850	(0.663)	415024	250	50
38 4-Methyl-2-Pentanone	43.00		4.032	4.032	(1.445)	135521	250	50
42 cis-1,3-Dichloropropene	75.00		4.653	4.653	(1.668)	204094	250	50
37 trans-1,3-Dichloropropene	75.00		3.956	3.956	(0.585)	265523	250	50
43 Toluene	92.00		4.638	4.638	(0.686)	457812	250	50
44 1,1,2-Trichloroethane	83.00		4.789	4.789	(0.709)	117329	250	50



Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
-----	----	--	-----	-----	-----	-----	-----
45 2-Hexanone	43.00	5.396	5.396	(0.798)	117606	250	50
46 Dibromochloromethane	129.00	5.396	5.396	(0.798)	138579	250	50
48 Tetrachloroethene	164.00	5.805	5.805	(0.859)	142462	250	50
52 Chlorobenzene	112.00	6.805	6.805	(1.007)	436573	250	50
M 2 Xylene (Total)	106.00				856274	750	150
53 Ethylbenzene	106.00	7.244	7.244	(1.072)	231669	250	50
54 m,p-Xylene(s)	106.00	7.471	7.471	(1.105)	562419	500	100
55 Bromoform	173.00	7.835	7.835	(1.159)	78792	250	50
57 Styrene	104.00	8.017	8.017	(1.186)	465072	250	50
58 o-Xylene	106.00	8.077	8.077	(1.195)	293855	250	50
59 1,1,2,2-Tetrachloroethane	83.00	8.623	8.623	(1.276)	153370	250	50
* 20 Bromochloromethane	128.00	2.123	2.123	(1.000)	86471	250	
* 31 1,4-Difluorobenzene	114.00	2.789	2.789	(1.000)	552052	250	
* 51 Chlorobenzene-d5	117.00	6.759	6.759	(1.000)	389031	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.365	2.365	(1.114)	38140	250	50
\$ 40 Toluene-d8	98.00	4.532	4.532	(0.670)	598801	250	50
\$ 61 Bromofluorobenzene	95.00	8.865	8.865	(1.312)	212343	250	50

QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129cs2.d  
Lab Smp Id: 50 PPB STD 8240S  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Misc Info:

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

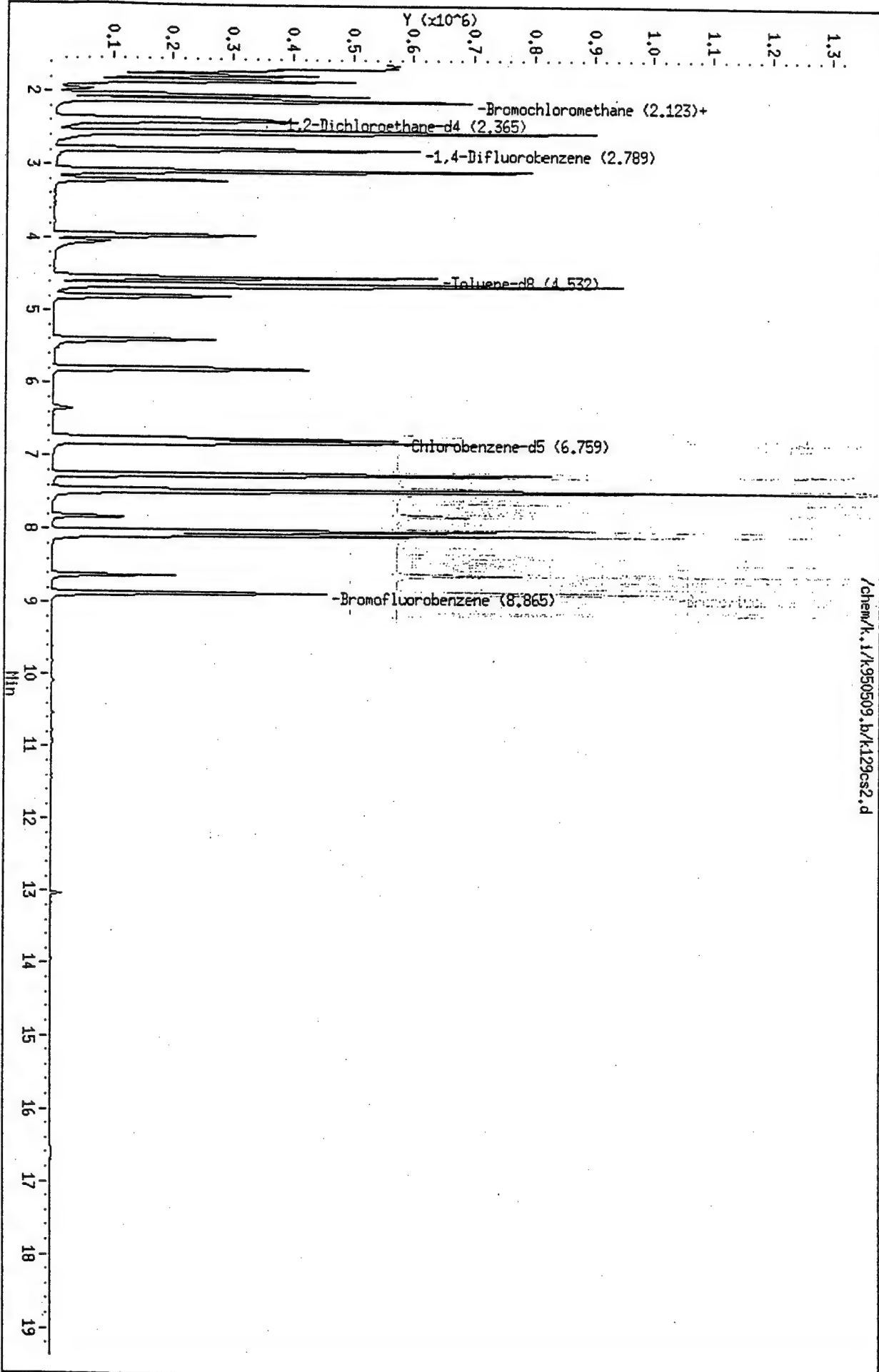
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	86471	0.00
31 1,4-Difluorobenzene	552052	276026	1104104	552052	0.00
51 Chlorobenzene-d5	389031	194516	778062	389031	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.00
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.00
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950509.b/k129cs2.d  
Date : 09-MAY-1995 11:08  
Client ID:  
Sample Info: 50 PPB STD 82405  
Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1  
Operator: HLM  
Column diameter: 0.25



SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 1.i  
 Lab File ID: 1128cw1.d  
 Analysis Type: WATER  
 Lab Sample ID:  
 Quant Type: ISTD

Injection Date: 08-MAY-1995 09:08  
 Init. Calibration Date(s): 05/02/95 05/02/95  
 Init. Calibration Times: 08:20 10:09  
 Method File: /chem/1.i/1950508.b/lvoclpw.m

COMPOUND	RRF	RF250	MIN RRF	MAX %D	MAX %D
1 Chloromethane	2.312	1.777	0.010	23.1	40.0
2 Vinyl Chloride	1.896	1.737	0.100	8.4	25.0
3 Bromomethane	1.492	1.360	0.100	8.8	25.0
4 Chloroethane	1.205	1.112	0.010	7.7	40.0
7 Trichlorofluoromethane	1.295	1.365	0.010	5.4	40.0
8 Acetone	0.383	0.325	0.010	15.2	100.0
11 1,1-Dichloroethene	1.424	1.265	0.100	11.2	25.0
13 Methylene Chloride	1.698	1.561	0.010	8.1	40.0
M 18 1,2-Dichloroethene (total)	1.868	1.747	0.010	6.5	40.0
14 Carbon Disulfide	5.712	5.094	0.010	10.8	40.0
15 trans-1,2-Dichloroethene	1.776	1.646	0.010	7.3	40.0
17 1,1-Dichloroethane	3.638	3.491	0.200	4.1	25.0
19 Vinyl Acetate	5.931	5.642	0.010	4.9	100.0
20 2-Butanone	2.770	2.206	0.010	20.3	100.0
21 cis-1,2-Dichloroethene	1.961	1.847	0.010	5.8	25.0
24 Chloroform	3.280	3.244	0.200	1.1	25.0
27 1,1,1-Trichloroethane	0.443	0.439	0.100	0.9	25.0
28 1,2-Dichloroethane	2.765	2.777	0.100	0.4	25.0
30 Benzene	1.436	1.385	0.500	3.5	25.0
31 Carbon Tetrachloride	0.360	0.396	0.100	9.9	25.0
34 1,2-Dichloropropane	0.389	0.381	0.010	2.1	25.0
35 Trichloroethene	0.325	0.329	0.300	1.4	25.0
37 Bromodichloromethane	0.443	0.447	0.200	0.9	25.0
39 2-Chloroethylvinylether	0.093	0.125	0.010	34.1	100.0
40 4-Methyl-2-Pentanone	0.692	0.601	0.010	13.2	100.0
41 cis-1,3-Dichloropropene	0.547	0.553	0.100	1.2	25.0
42 trans-1,3-Dichloropropene	0.486	0.482	0.100	0.8	25.0
44 Toluene	0.992	0.936	0.400	5.6	25.0
45 1,1,2-Trichloroethane	0.269	0.263	0.100	2.2	25.0
46 2-Hexanone	0.809	0.691	0.010	14.6	100.0
47 Dibromochloromethane	0.311	0.334	0.100	7.3	25.0
49 Tetrachloroethene	0.379	0.391	0.200	3.2	25.0
52 Chlorobenzene	0.999	0.994	0.500	0.5	25.0
M 53 Xylene (Total)	0.629	0.607	0.300	3.5	25.0
54 Ethylbenzene	0.515	0.495	0.100	3.9	25.0
55 m,p-Xylene(s)	0.634	0.611	0.300	3.7	25.0
56 Bromoform	0.312	0.323	0.100	3.4	25.0
57 Styrene	0.989	0.977	0.300	1.2	25.0
59 o-Xylene	0.618	0.600	0.300	2.9	25.0
60 1,1,2,2-Tetrachloroethane	0.501	0.463	0.300	7.6	25.0

Data File: /chem/1.i/1950508.b/l128cw1.d  
Report Date: 10-May-1995 19:40

Page 2

SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 1.i      Injection Date: 08-MAY-1995 09:08  
Lab File ID: l128cw1.d      Init. Calibration Date(s): 05/02/95 05/02/95  
Analysis Type: WATER      Init. Calibration Times: 08:20 10:09  
Lab Sample ID:      Method File: /chem/1.i/1950508.b/lvoclpw.m  
Quant Type: ISTD

COMPOUND	RRF	RF250	MIN RRF	MAX %D
\$ 26 1,2-Dichloroethane-d4	0.421	0.408	0.010	3.1
\$ 43 Toluene-d8	1.392	1.313	0.010	5.7
\$ 61 Bromofluorobenzene	0.521	0.514	0.010	1.4

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950508.b/l128cw1.d

Lab Smp Id:

Inj Date : 08-MAY-1995 09:08

Operator : JC

Inst ID: 1.i

Smp Info : 50 UG-L STD-8240W/1X

Misc Info : L128W1//L128CW1

Comment :

Method : /chem/1.i/1950508.b/lvoclpw.m

Method Date : 08-May-1995 09:30 jimmy

Quant Type: ISTD

Cal Date : 08-MAY-1995 09:08

Cal File: l128cw1.d

als bottle: 2

Continuing Calibration Sample

Oil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
1 Chloromethane	50.00	1.777	1.777	(0.340)	107731	250	190
2 Vinyl Chloride	62.00	1.884	1.884	(0.360)	105296	250	230
3 Bromomethane	94.00	2.125	2.125	(0.407)	82431	250	230
4 Chloroethane	64.00	2.196	2.196	(0.420)	67406	250	230
7 Trichlorofluoromethane	101.00	2.544	2.544	(0.487)	82744	250	260
8 Acetone	58.00	2.606	2.606	(0.499)	19706	250	210(a)
11 1,1-Dichloroethene	96.00	2.998	2.998	(0.574)	76676	250	220
13 Methylene Chloride	84.00	3.239	3.239	(0.620)	94648	250	230
18 1,2-Dichloroethene (total)	96.00				211762	500	470
14 Carbon Disulfide	76.00	3.364	3.364	(0.644)	308797	250	220
15 trans-1,2-Dichloroethene	96.00	3.827	3.827	(0.732)	99801	250	230
17 1,1-Dichloroethane	63.00	4.166	4.166	(0.797)	211610	250	240
19 Vinyl Acetate	43.00	4.255	4.255	(0.814)	342041	250	240
20 2-Butanone	43.00	4.621	4.621	(0.884)	133751	250	200
21 cis-1,2-Dichloroethene	96.00	4.968	4.968	(0.951)	111961	250	240
24 Chloroform	83.00	5.245	5.245	(1.003)	196694	250	250
27 1,1,1-Trichloroethane	97.00	6.029	6.029	(0.869)	140648	250	250
28 1,2-Dichloroethane	62.00	6.118	6.118	(1.171)	168342	250	250
30 Benzene	78.00	6.475	6.475	(0.933)	443894	250	240
31 Carbon Tetrachloride	117.00	6.502	6.502	(0.937)	126910	250	270
34 1,2-Dichloropropane	63.00	7.464	7.464	(1.076)	122122	250	240
35 Trichloroethene	130.00	7.500	7.500	(1.081)	105467	250	250
37 Bromodichloromethane	83.00	7.687	7.687	(1.108)	143344	250	250
39 2-Chloroethylvinylether	63.00	8.284	8.284	(1.194)	40038	250	340
40 4-Methyl-2-Pentanone	43.00	8.516	8.516	(1.227)	192452	250	220
41 cis-1,3-Dichloropropene	75.00	8.552	8.552	(1.233)	177320	250	250
42 trans-1,3-Dichloropropene	75.00	9.176	9.176	(1.322)	154540	250	250
44 Toluene	92.00	9.265	9.265	(0.834)	243555	250	240
45 1,1,2-Trichloroethane	83.00	9.345	9.345	(1.347)	84138	250	240

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
							CAL-AMT	CN-COL
							( ng)	( ng)
2-Hexanone		43.00	9.720	9.720	(0.875)	179646	250	210
Dibromochloromethane		129.00	9.969	9.969	(1.437)	106977	250	270
49 Tetrachloroethene		164.00	10.317	10.317	(0.929)	101682	250	260
52 Chlorobenzene		112.00	11.164	11.164	(1.005)	258616	250	250
Xylene (Total)		106.00				473843	750	720
Ethylbenzene		106.00	11.458	11.458	(1.031)	128813	250	240
55 m,p-Xylene(s)		106.00	11.627	11.627	(1.047)	317828	500	480
Bromoform		173.00	12.046	12.046	(1.084)	83914	250	260
Styrene		104.00	12.091	12.091	(1.088)	254276	250	250
59 o-Xylene		106.00	12.153	12.153	(1.094)	156015	250	240
60 1,1,2,2-Tetrachloroethane		83.00	12.501	12.501	(1.125)	120410	250	230
Bromochloromethane		128.00	5.227	5.227	(1.000)	60624	250	
1,4-Difluorobenzene		114.00	6.938	6.938	(1.000)	320419	250	
50 Chlorobenzene-d5		117.00	11.110	11.110	(1.000)	260163	250	
26 1,2-Dichloroethane-d4		102.00	6.002	6.002	(1.148)	24743	250	240
Toluene-d8		98.00	9.167	9.167	(0.825)	341723	250	240
Bromofluorobenzene		95.00	12.786	12.786	(1.151)	133659	250	250

# Flag Legend

- Target compound detected but, quantitated amount  
 Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: l128cw1.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950508.b/lvoclpw.m  
Misc Info: L128W1//L128CW1

Calibration Date: 05/08/95  
Calibration Time: 0908

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	60624	30312	121248	60624	0.00
32 1,4-Difluorobenzene	320419	160210	640838	320419	0.00
50 Chlorobenzene-d5	260163	130082	520326	260163	0.00

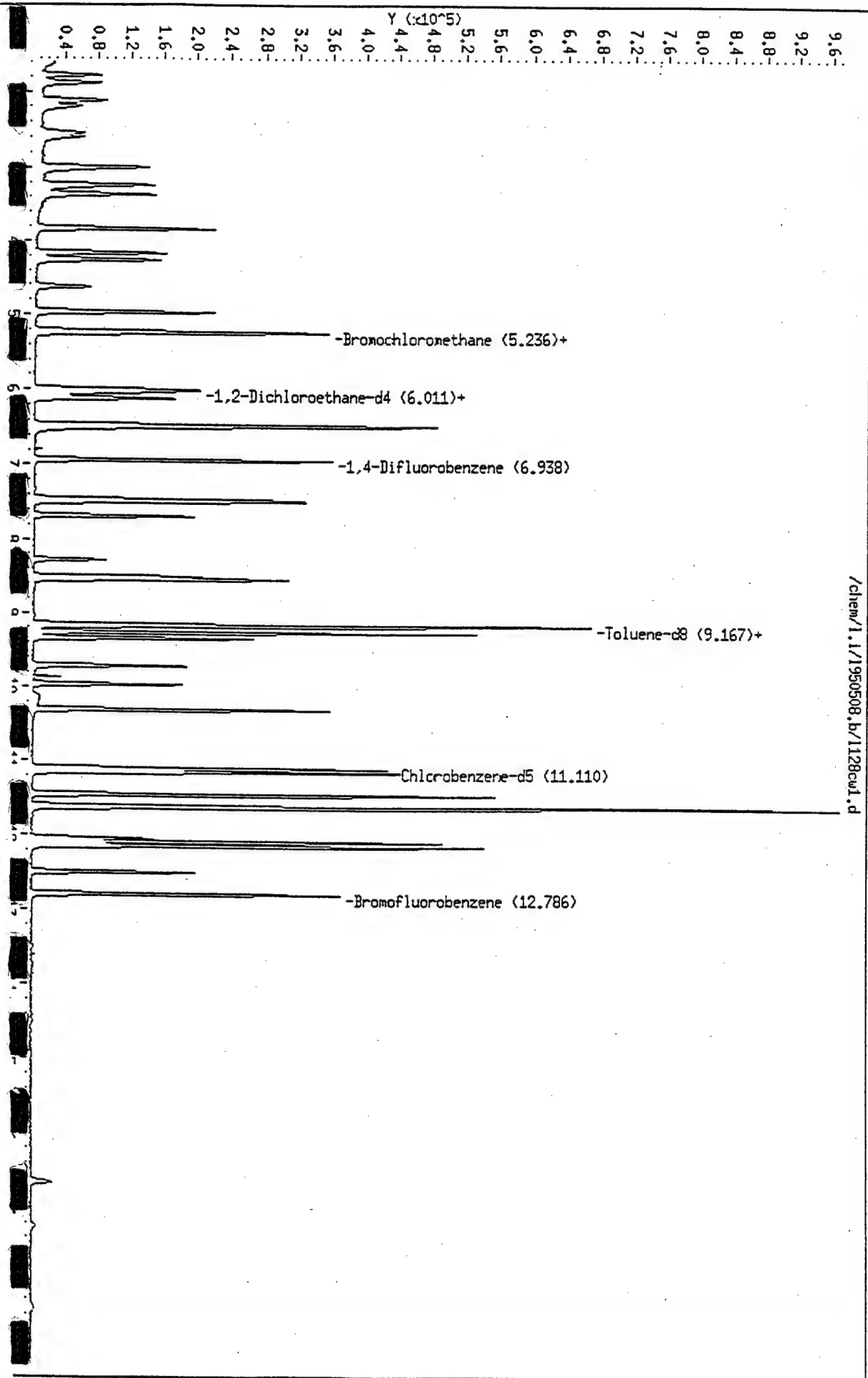
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.23	4.73	5.73	5.23	0.00
32 1,4-Difluorobenzene	6.94	6.44	7.44	6.94	0.00
50 Chlorobenzene-d5	11.11	10.61	11.61	11.11	0.00

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950508.b/1128cwl.d  
Date : 08-JUN-1995 09:08  
Client ID:  
Sample Info: 50 UG-L STD-8240W/1X  
Purge Volume: 5.0  
Column phase: 30m,lp5ms,0.25u df

Instrument: 1.1  
Operator: JC  
Column diameter: 0.25



3A

## WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPLCase No.: BLANK

SAS No.: \_\_\_\_\_

SDG NO.: 505209Matrix Spike - EPA Sample No.: BLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC.
Phenol	75	0	45	60	12-110
2-Chlorophenol	75	0	49	65	27-123
1,4-Dichlorobenzene	50	0	18	36	36- 97
N-Nitroso-di-n-propylamin	50	0	34	68	41-116
1,2,4-Trichlorobenzene	50	0	21	42	39- 98
4-Chloro-3-methylphenol	75	0	61	81	23- 97
Acenaphthene	50	0	32	64	46-118
4-Nitrophenol	75	0	48	64	10- 80
2,4-Dinitrotoluene	50	0	42	84	24- 96
Pentachlorophenol	75	0	44	59	9-103
Pyrene	50	0	32	64	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
Phenol	75	45	60	0	42	12-110
2-Chlorophenol	75	50	67	3	40	27-123
1,4-Dichlorobenzene	50	19	38	5	28	36- 97
N-Nitroso-di-n-propylamin	50	32	64	6	38	41-116
1,2,4-Trichlorobenzene	50	21	42	0	28	39- 98
4-Chloro-3-methylphenol	75	62	83	2	42	23- 97
Acenaphthene	50	33	66	3	31	46-118
4-Nitrophenol	75	51	68	6	50	10- 80
2,4-Dinitrotoluene	50	43	86	2	38	24- 96
Pentachlorophenol	75	46	61	3	50	9-103
Pyrene	50	30	60	6	31	26-127

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 11 outside limitsSpike Recovery: 0 out of 22 outside limits

FORM III SV - 1

  
 \_\_\_\_\_  
 Joelle Williams, QC Officer

3B

## SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPLCase No.: 505204

SAS No.: \_\_\_\_\_

SDG NO.: 505209Matrix Spike - EPA Sample No.: RV018-06

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMIT REC.
Phenol	2500	0	1800	72	26- 90
2-Chlorophenol	2500	0	1800	72	25-102
1,4-Dichlorobenzene	1600	0	1200	75	28-104
N-Nitroso-di-n-prop.(1)	1600	0	1400	88	41-126
1,2,4-Trichlorobenzene	1600	0	1300	81	38-107
4-Chloro-3-methylphenol	2500	0	2500	100	26-103
Acenaphthene	1600	0	1300	81	31-137
4-Nitrophenol	2500	0	2800	112	11-114
2,4-Dinitrotoluene	1600	0	1700	106*	28- 89
Pentachlorophenol	2500	0	2200	88	17-109
Pyrene	1600	0	1400	88	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
Phenol	2500	1800	72	0	35	26- 90
2-Chlorophenol	2500	1800	72	0	50	25-102
1,4-Dichlorobenzene	1600	1100	69	8	27	28-104
N-Nitroso-di-n-prop.(1)	1600	1400	88	0	38	41-126
1,2,4-Trichlorobenzene	1600	1300	81	0	23	38-107
4-Chloro-3-methylphenol	2500	2300	92	8	33	26-103
Acenaphthene	1600	1200	75	8	19	31-137
4-Nitrophenol	2500	2600	104	7	50	11-114
2,4-Dinitrotoluene	1600	1600	100*	6	47	28- 89
Pentachlorophenol	2500	2000	80	10	47	17-109
Pyrene	1600	1400	88	0	36	35-142

(1) N-Nitroso-di-n-propylamine

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 11 outside limitsSpike Recovery: 2 out of 22 outside limits

FORM III SV - 2

  
 \_\_\_\_\_  
 Delis Williams, QC Officer

Data File: /chem/h.i/h950511.b/h126kb2.d  
Report Date: 11-May-1995 14:32

Page 1

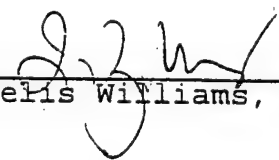
SPL Houston Labs

RECOVERY REPORT

Client Name: Client SDG: h950511  
Sample Matrix: SOLID Fraction: SV  
Lab Smp Id: LCS  
Level: LOW Operator: LH  
Data Type: MS DATA SampleType: BLANK  
SpikeList File: 8270s.spk Quant Type: ISTD  
Method File: /chem/h.i/h950511.b/hclps.m  
Misc Info: E126S1/H126B02/H131CC1

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
5 Phenol	2500	1700	69.31	26-90
9 2-Chlorophenol	2500	1600	65.89	25-102
12 1,4-Dichlorobenzen	1600	1000	65.80	28-104
21 N-Nitroso-di-n-pro	1600	1200	78.13	41-126
31 1,2,4-Trichloroben	1600	1100	71.52	38-107
36 4-Chloro-3-methylp	2500	2000	81.94	26-103
49 Acenaphthene	1600	1100	70.45	31-137
51 4-Nitrophenol	2500	2400	95.39	11-114
53 2,4-Dinitrotoluene	1600	1400	88.67	28-89
64 Pentachlorophenol	2500	2200	89.59	17-109
71 Pyrene	1600	1200	75.08	35-142

SURROGATE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
\$ 23 Nitrobenzene-d5	1600	1200	78.67	23-120
\$ 41 2-Fluorobiphenyl	1600	1200	76.77	30-115
\$ 72 Terphenyl-d14	1600	1300	82.94	18-137
\$ 3 2-Fluorophenol	2500	1900	74.82	25-121
\$ 4 Phenol-d5	2500	1900	77.83	24-113
\$ 61 2,4,6-Tribromophen	2500	2000	79.86	19-122

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 1

Matrix: Soil  
Sample ID: BLANK  
Batch: E950512044703

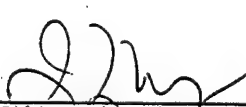
Reported on: 05/19/95 10:08  
Analyzed on: 05/15/95 18:42  
Analyst: LH

## METHOD 8270 BLANK H132B02

Compound	Result	Detection Limit	Units
Pyridine	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
bis(2-Chloroethyl) ether	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
bis(2-chloroisopropyl) ether	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
N-Nitroso-di-n-propylamine	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Nitrobenzene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Benzoic acid	ND	1600	ug/Kg
bis(2-Chloroethoxy) methane	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
4-Chloro-3-methylphenol	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
Dimethylphthalate	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 2

Matrix: Soil  
Sample ID: BLANK  
Batch: E950512044703

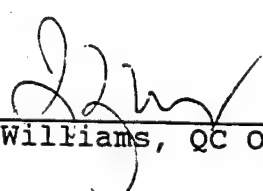
Reported on: 05/19/95 10:08  
Analyzed on: 05/15/95 18:42  
Analyst: LH

## METHOD 8270 BLANK H132B02

C o m p o u n d	Result	Detection Limit	Units
Acenaphthylene	ND	330	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
Acenaphthene	ND	330	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
Dibenzofuran	ND	330	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
4-Chlorophenyl-phenylether	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
4,6-Dinitro-2-methylphenol	ND	800	ug/Kg
n-Nitrosodiphenylamine	ND	330	ug/Kg
1,2-Diphenylhydrazine	ND	330	ug/Kg
4-Bromophenyl-phenylether	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
Di-n-butylphthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
Benzo[a]anthracene	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
bis(2-Ethylhexyl)phthalate	ND	330	ug/Kg
Di-n-octylphthalate	ND	330	ug/Kg
Benzo[b]fluoranthene	ND	330	ug/Kg
Benzo[k]fluoranthene	ND	330	ug/Kg
Benzo[a]pyrene	ND	330	ug/Kg
Indeno[1,2,3-cd]pyrene	ND	330	ug/Kg
Dibenz[a,h]anthracene	ND	330	ug/Kg

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 3

Matrix: Soil  
Sample ID: BLANK  
Batch: E950512044703

Reported on: 05/19/95 10:08  
Analyzed on: 05/15/95 18:42  
Analyst: LH

## METHOD 8270 BLANK H132B02

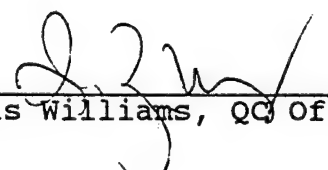
C o m p o u n d	Result	Detection Limit	Units
Benzo[g,h,i]perylene	ND	330	ug/Kg

S u r r o g a t e	Result	QC Criteria	Units
2-Fluorophenol	45	25-121	% Recovery
Phenol-d5	54	24-113	% Recovery
Nitrobenzene-d5	70	23-120	% Recovery
2-Fluorobiphenyl	71	30-115	% Recovery
2,4,6-Tribromophenol	88	19-122	% Recovery
Terphenyl-d14	86	18-137	% Recovery

Samples in Batch 9505209-01 9505209-02 9505209-03 9505209-04  
9505209-05

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

SPL Houston Labs

Data file : /chem/h.i/h950515.b/h132b02.d

Lab Smp Id:

Inj Date : 15-MAY-1995 18:42

Operator : LH

Inst ID: h.i

Smp Info : BLANK-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 15-May-1995 17:01 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: blk.sub

Target Version: 3.10

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	(ug/Kg)
\$ 3 2-Fluorophenol		112.00	3.489	3.458	(0.780)	458931	68	1100
\$ 4 Phenol-d5		99.00	4.188	4.193	(0.936)	598458	80	1300
* 11 1,4-Dichlorobenzene-d4		152.00	4.472	4.477	(1.000)	193111	40	
\$ 23 Nitrobenzene-d5		82.00	4.982	4.999	(0.879)	382000	68	1100
* 32 Naphthalene-d8		136.00	5.669	5.674	(1.000)	711630	40	
\$ 41 2-Fluorobiphenyl		172.00	6.759	6.765	(0.908)	768337	68	1100
* 48 Acenaphthene-d10		164.00	7.447	7.452	(1.000)	344724	40	
\$ 61 2,4,6-Tribromophenol		329.70	8.264	8.258	(0.924)	215471	130	2200
* 65 Phenanthrene-d10		188.00	8.940	8.945	(1.000)	477181	40	
\$ 72 Terphenyl-d14		244.00	10.575	10.580	(0.896)	688994	82	1400
* 76 Chrysene-d12		240.00	11.808	11.813	(1.000)	311102	40	
* 83 Perylene-d12		264.00	14.047	14.053	(1.000)	194677	40	



SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h132b02.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	193111	56.97
32 Naphthalene-d8	418440	209220	836880	711630	70.07
48 Acenaphthene-d10	198324	99162	396648	344724	73.82
65 Phenanthrene-d10	270386	135193	540772	477181	76.48
76 Chrysene-d12	175926	87963	351852	311102	76.84
83 Perylene-d12	106536	53268	213072	194677	82.73

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.12
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.09
48 Acenaphthene-d10	7.45	6.95	7.95	7.45	-0.07
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.06
76 Chrysene-d12	11.81	11.31	12.31	11.81	-0.04
83 Perylene-d12	14.05	13.55	14.55	14.05	-0.04

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h132b02.d  
Date : 15-MAY-95 18:42

Client ID:

Sample Info: BLANK-82705/1X

Volume Injected (uL): 2.0

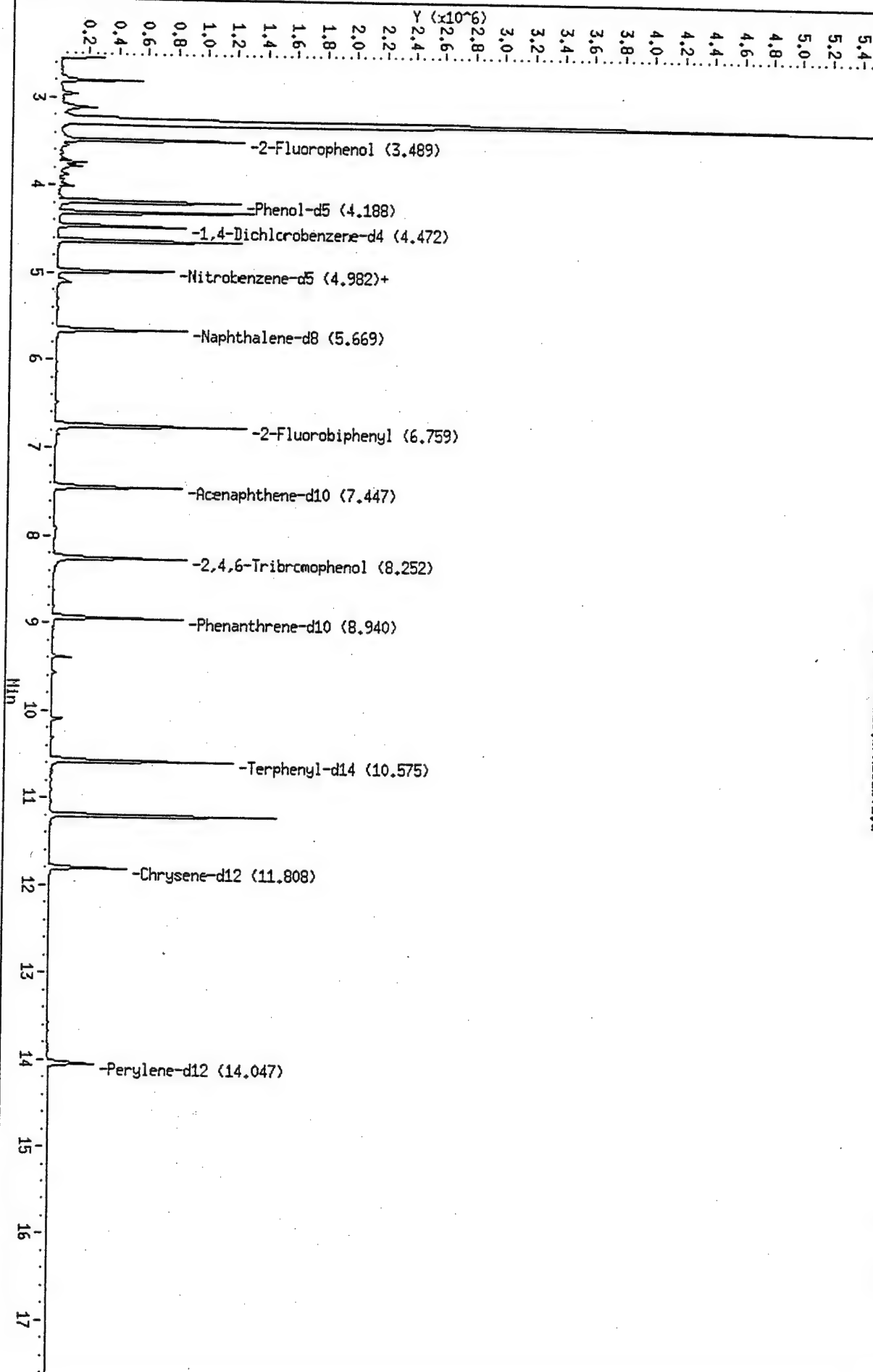
Column phase:

Instrument: h.1

Operator: LH

Column diameter: 0.25

/chem/h.1/h950515.b/h132b02.d



## SPL Blank QC Report

page 1

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950509041714

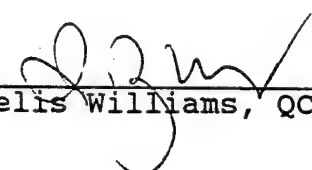
Reported on: 05/19/95 10:12  
Analyzed on: 05/16/95 14:22  
Analyst: PC

## METHOD 8270

Compound	Result	Detection Limit	Units
Pyridine	ND	5	ug/L
Phenol	ND	5	ug/L
Aniline	ND	5	ug/L
bis(2-Chloroethyl) ether	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
bis(2-chloroisopropyl) ether	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
N-Nitroso-di-n-propylamine	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Nitrobenzene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Benzoic acid	ND	25	ug/L
bis(2-Chloroethoxy) methane	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
Naphthalene	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
4-Chloro-3-methylphenol	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
Dimethylphthalate	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 2

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950509041714

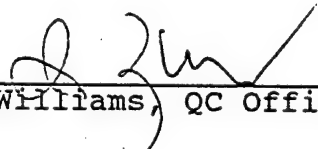
Reported on: 05/19/95 10:11  
Analyzed on: 05/16/95 14:22  
Analyst: PC

## METHOD 8270

C o m p o u n d	Result	Detection Limit	Units
Acenaphthylene	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
Acenaphthene	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
Dibenzofuran	ND	5	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
4-Chlorophenyl-phenylether	ND	5	ug/L
Fluorene	ND	5	ug/L
4-Nitroaniline	ND	25	ug/L
4,6-Dinitro-2-methylphenol	ND	25	ug/L
n-Nitrosodiphenylamine	ND	5	ug/L
1,2-Diphenylhydrazine	ND	5	ug/L
4-Bromophenyl-phenylether	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Anthracene	ND	5	ug/L
Carbazole	ND	5	ug/L
Di-n-butylphthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Pyrene	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
Benzo[a]anthracene	ND	5	ug/L
Chrysene	ND	5	ug/L
bis(2-Ethylhexyl)phthalate	ND	5	ug/L
Di-n-octylphthalate	ND	5	ug/L
Benzo[b]fluoranthene	ND	5	ug/L
Benzo[k]fluoranthene	ND	5	ug/L
Benzo[a]pyrene	ND	5	ug/L
Indeno[1,2,3-cd]pyrene	ND	5	ug/L
Dibenz[a,h]anthracene	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 3

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950509041714

Reported on: 05/19/95 10:12  
Analyzed on: 05/16/95 14:22  
Analyst: PC

## METHOD 8270

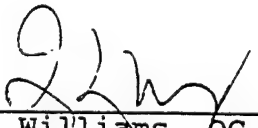
C o m p o u n d	Result	Detection Limit	Units
Benzo[g,h,i]perylene	ND	5	ug/L

S u r r o g a t e	Result	QC Criteria	Units
2-Fluorophenol	66	21-110	% Recovery
Phenol-d5	70	10-110	% Recovery
Nitrobenzene-d5	65	35-114	% Recovery
2-Fluorobiphenyl	61	43-116	% Recovery
2,4,6-Tribromophenol	63	10-123	% Recovery
Terphenyl-d14	75	33-141	% Recovery

Samples in Batch 9505209-06

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

Data File: /chem/j.i/j950516.b/j129b01.d  
Report Date: 17-May-1995 12:06

Page 1

SPL Houston Labs

Data file : /chem/j.i/j950516.b/j129b01.d

Lab Smp Id:

Acq Date : 16-MAY-1995 14:22

Operator : PC

Inst ID: j.i

Smp Info : BLANK-8270W/1X

Misc Info : E129C1/J129B01a/J136CC1

Comment :

Method : /chem/j.i/j950516.b/jclpw.m

Acq Date : 17-May-1995 09:54 patti

Quant Type: ISTD

Cal Date : 16-MAY-1995 13:36

Cal File: j136cc1.d

Is bottle: 1

Cal Factor: 1.000

Integrator: HP RTE

Compound Sublist: BLK.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	----	--	-----	-----	-----	-----	-----	
3 2-Fluorophenol	112.00	5.833	5.843	(0.724)	501427	99	50 (Q)	
4 Phenol-d5	99.00	7.445	7.451	(0.924)	1252051	100	53	
11 1,4-Dichlorobenzene-d4	152.00	8.055	8.051	(1.000)	308234	40		
23 Nitrobenzene-d5	82.00	9.265	9.274	(0.854)	802677	65	32	
32 Naphthalene-d8	136.00	10.855	10.855	(1.000)	1317031	40		
41 2-Fluorobiphenyl	172.00	13.491	13.495	(0.893)	1592569	61	30	
48 Acenaphthene-d10	164.00	15.115	15.121	(1.000)	800572	40		
61 2,4,6-Tribromophenol	329.70	17.096	17.100	(0.912)	358018	95	47	
65 Phenanthrene-d10	188.00	18.740	18.738	(1.000)	1236696	40		
72 Terphenyl-d14	244.00	22.711	22.709	(0.893)	1960106	75	37	
76 Chrysene-d12	240.00	25.433	25.435	(1.000)	1056137	40		
83 Perylene-d12	264.00	29.954	29.953	(1.000)	695497	40		

C Flag Legend

- Qualifier signal failed the ratio test.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: j.i  
Lab File ID: j129b01.d  
Lab Smp Id:  
Analysis Type: SV  
Ant Type: ISTD  
Operator: PC

Calibration Date: 05/16/95  
Calibration Time: 1336

Level: LOW  
Sample Type: WATER

Method File: /chem/j.i/j950516.b/jclpw.m  
Esc Info: E129C1/J129B01a/J136CC1

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
1 1,4-Dichlorobenzene-	289308	144654	578616	308234	6.54
2 Naphthalene-d8	1152470	576235	2304940	1317031	14.28
48 Acenaphthene-d10	670048	335024	1340096	800572	19.48
65 Phenanthrene-d10	991595	495798	1983190	1236696	24.72
6 Chrysene-d12	817574	408787	1635148	1056137	29.18
83 Perylene-d12	498000	249000	996000	695497	39.66

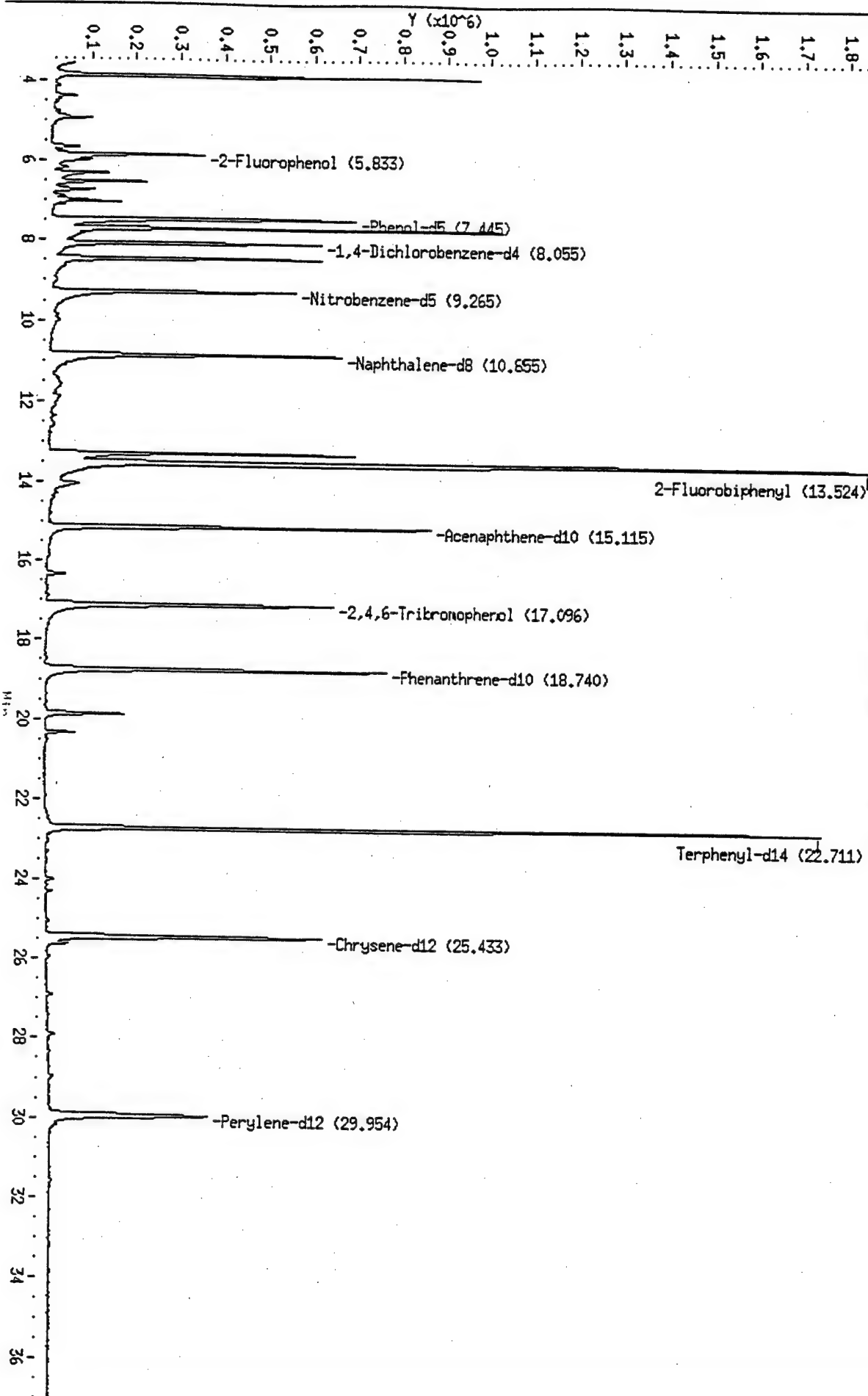
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
1 1,4-Dichlorobenzene-	8.05	7.55	8.55	8.06	0.05
2 Naphthalene-d8	10.85	10.35	11.35	10.85	0.00
48 Acenaphthene-d10	15.12	14.62	15.62	15.12	-0.04
65 Phenanthrene-d10	18.74	18.24	19.24	18.74	0.01
6 Chrysene-d12	25.44	24.94	25.94	25.43	-0.01
83 Perylene-d12	29.95	29.45	30.45	29.95	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/J.1/J950516.b/J129b01.d  
Date: 16-MAY-1995 14:22  
Client ID:  
Sample Info: BLANK-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: J.1  
Operator: PC  
Column diameter: 0.25

/chem/J.1/J950516.b/J129b01.d



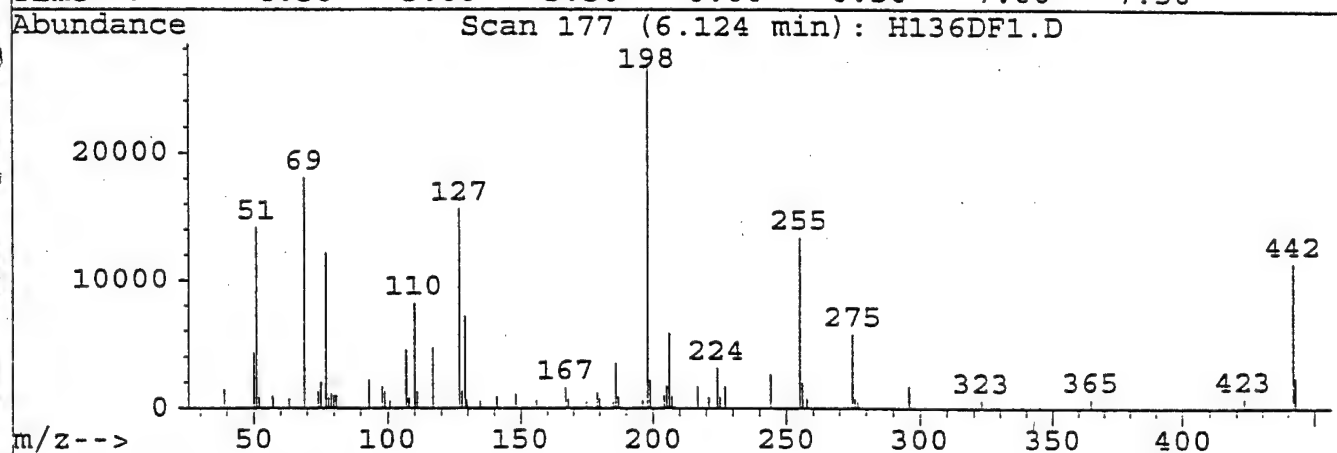
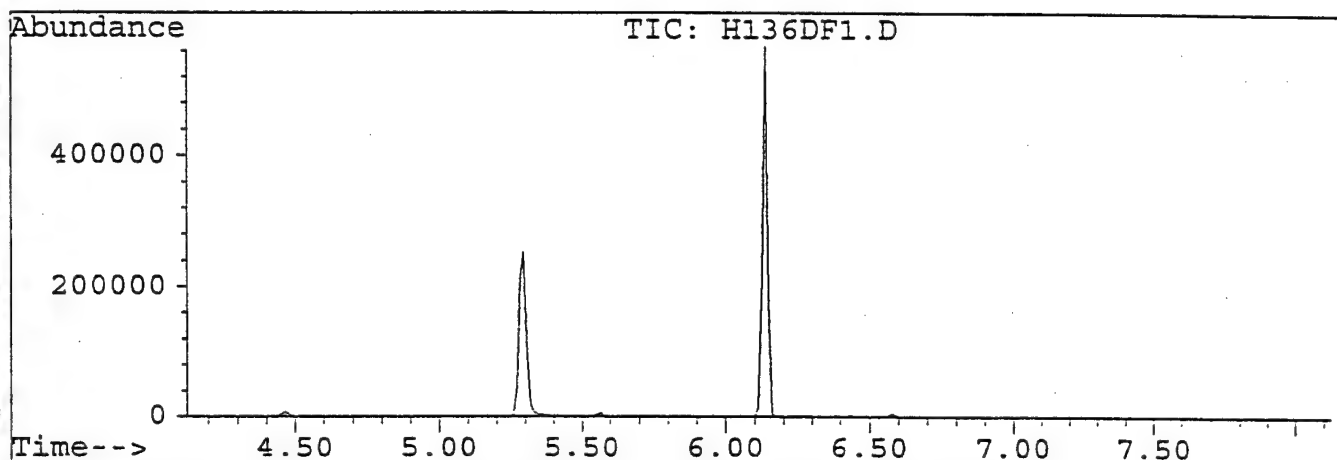


## DFTPP

Data File : C:\HPCHEM\1\DATA\H950516\H136DF1.D  
Acq On : 16 May 95 11:38 am  
Sample : 50 NG DFTPP  
Misc : 950516 50NG DFTPP

Vial: 1  
Operator: LH  
Inst : h  
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\ENVDEF.M  
Title :



Peak Apex is scan: 177

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	52.5	14211	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	66.8	18088	PASS
70	69	0	2	0.0	0	PASS
127	198	40	60	57.8	15657	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	27088	PASS
199	198	5	9	8.2	2212	PASS
275	198	10	30	21.4	5796	PASS
365	198	1	100	2.6	706	PASS
441	443	0	100	0.0	0	PASS
442	198	40	100	42.1	11400	PASS
443	442	17	23	20.9	2388	PASS

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 16-MAY-1995 11:52  
 End Cal Date : 16-MAY-1995 13:52  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950516.b/hclpw.m  
 Cal Date : 16-May-1995 15:06 liping  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/h.i/h950516.b/h136ic5.d  
 Level 2: /chem/h.i/h950516.b/h136ic1.d  
 Level 3: /chem/h.i/h950516.b/h136ic4.d  
 Level 4: /chem/h.i/h950516.b/h136ic3.d  
 Level 5: /chem/h.i/h950516.b/h136ic2.d

Compound	20	50	80	120	160	RRF	% RSD
	Level 1	Level 2	Level 3	Level 4	Level 5		
2 Pyridine	0.93085	1.13643	0.91995	0.91370	0.95641	0.97147	9.640
5 Phenol	1.53843	1.59148	1.34245	1.13600	1.09025	1.33972	16.964
6 Aniline	1.23826	1.29266	1.24247	1.22638	1.06134	1.21222	7.266
7 bis(2-Chloroethyl)ether	1.37570	1.42358	1.23271	1.08935	1.08904	1.24208	12.578
9 2-Chlorophenol	1.32738	1.35636	1.26991	1.13220	1.11061	1.23929	9.060
10 1,3-Dichlorobenzene	1.59187	1.56769	1.45432	1.28242	1.27962	1.43518	10.452
12 1,4-Dichlorobenzene	1.59811	1.50446	1.42332	1.24664	1.29165	1.41284	10.326
13 Benzyl alcohol	0.19961	0.23473	0.23987	0.21461	0.19584	0.21693	9.199
15 1,2-Dichlorobenzene	1.47536	1.40280	1.25252	1.09731	1.07837	1.26127	14.087
16 2-Methylphenol	1.27262	1.34079	1.24523	1.23090	1.09154	1.23622	7.381
17 ortho-Cresol	1.27262	1.34079	1.24523	1.23090	1.09154	1.23622	7.381
18 bis(2-chloroisopropyl)ether	0.83661	0.84555	0.74673	0.67024	0.63736	0.74730	12.634
19 4-Methylphenol	1.26053	1.30180	1.14902	0.98135	0.91026	1.12059	15.253
20 meta,para-Cresol	1.26053	1.30180	1.14902	0.98135	0.91026	1.12059	15.253
21 N-Nitroso-di-n-propylamine	0.68927	0.62395	0.60583	0.54622	0.50082	0.59322	12.236
22 Hexachloroethane	0.57602	0.54593	0.53691	0.49558	0.49311	0.52951	6.653
24 Nitrobenzene	0.31606	0.31105	0.29906	0.27412	0.27725	0.29551	6.481
25 Isophorone	0.59718	0.58785	0.54895	0.53379	0.51024	0.55560	6.580
26 2-Nitrophenol	0.21514	0.21865	0.21321	0.19960	0.19772	0.20886	4.569
27 2,4-Dimethylphenol	0.37998	0.36719	0.38461	0.35979	0.36318	0.37095	2.914
28 Benzoic acid	0.16594	0.16428	0.18636	0.20212	0.19758	0.18326	9.572
29 bis(2-Chloroethoxy)methane	0.33468	0.32954	0.29378	0.26651	0.25444	0.29579	12.215
30 2,4-Dichlorophenol	0.31747	0.29926	0.29605	0.27144	0.26632	0.29011	7.276
31 1,2,4-Trichlorobenzene	0.35006	0.33579	0.31664	0.28782	0.28929	0.31592	8.755
33 Naphthalene	1.06068	1.00233	0.89613	0.80192	0.79364	0.91094	13.063
34 4-Chloroaniline	0.35817	0.33131	0.35020	0.32001	0.31213	0.33436	5.844

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 16-MAY-1995 11:52  
 End Cal Date : 16-MAY-1995 13:52  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950516.b/hclpw.m  
 Cal Date : 16-May-1995 15:06 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
35 Hexachlorobutadiene	0.21398	0.19573	0.20536	0.19152	0.19523	0.20036	4.577
36 4-Chloro-3-methylphenol	0.29595	0.29088	0.31411	0.29798	0.28845	0.29748	3.380
37 2-Methylnaphthalene	0.71300	0.64446	0.62305	0.55148	0.54250	0.61490	11.450
38 Hexachlorocyclopentadiene	0.37919	0.39660	0.43470	0.42490	0.41843	0.41076	5.483
39 2,4,6-Trichlorophenol	0.38408	0.38338	0.36360	0.35323	0.33013	0.36288	6.217
40 2,4,5-Trichlorophenol	0.42915	0.47626	0.49058	0.45000	0.45103	0.45940	5.253
42 2-Chloronaphthalene	1.24587	1.19399	1.09819	1.01038	0.98522	1.10673	10.212
43 2-Nitroaniline	0.27572	0.28129	0.29019	0.27612	0.26502	0.27767	3.302
44 Dimethylphthalate	1.52943	1.43407	1.33343	1.20273	1.15637	1.33121	11.695
45 2,6-Dinitrotoluene	0.34440	0.33611	0.34434	0.29981	0.28983	0.32290	8.081
46 Acenaphthylene	2.00977	1.90998	1.76946	1.56597	1.51402	1.75384	12.193
47 3-Nitroaniline	0.30305	0.31102	0.32858	0.29389	0.28390	0.30409	5.601
49 Acenaphthene	1.20408	1.10783	1.03238	0.93600	0.89012	1.03408	12.298
50 2,4-Dinitrophenol	0.08347	0.14121	0.18883	0.18438	0.17488	0.15455	28.404
51 4-Nitrophenol	0.11681	0.14065	0.18665	0.17400	0.16216	0.15605	17.761
52 Dibenzofuran	1.73808	1.64776	1.50165	1.31579	1.27640	1.49594	13.468
53 2,4-Dinitrotoluene	0.42188	0.42595	0.42345	0.37219	0.35678	0.40005	8.237
54 Diethylphthalate	1.60277	1.41407	1.40290	1.20996	1.16152	1.35824	13.046
55 4-Chlorophenyl-phenylether	0.65696	0.58783	0.54472	0.46371	0.46280	0.54320	15.325
56 Fluorene	1.24090	1.09432	1.00295	0.85706	0.83676	1.00640	16.761
57 4-Nitroaniline	0.27489	0.28723	0.30775	0.26888	0.24903	0.27756	7.854
58 4,6-Dinitro-2-methylphenol	0.12365	0.16323	0.18611	0.18070	0.17537	0.16581	15.106
59 n-Nitrosodiphenylamine	0.60285	0.59232	0.55700	0.52471	0.51684	0.55874	6.925
60 1,2-Diphenylhydrazine	1.60393	1.43768	1.33184	1.30555	1.37953	1.41170	8.404
62 4-Bromophenyl-phenylether	0.30495	0.28562	0.27457	0.25874	0.25716	0.27621	7.209
63 Hexachlorobenzene	0.37036	0.35104	0.33159	0.31889	0.32230	0.33884	6.376
64 Pentachlorophenol	0.13935	0.18792	0.20474	0.20590	0.20356	0.18830	15.044
66 Phenanthrene	1.27668	1.17458	1.11186	0.98722	0.99280	1.10863	11.117
67 Anthracene	1.21519	1.20088	1.06904	0.98974	0.98672	1.09231	10.143
68 Carbazole	1.01709	0.97877	0.93805	0.85389	0.82960	0.92348	8.678
69 Di-n-butylphthalate	1.72436	1.51736	1.37624	1.27961	1.25811	1.43113	13.501
70 Fluoranthene	1.09653	0.99165	0.98804	0.89018	0.87376	0.96803	9.300
71 Pyrene	1.58611	1.58875	1.54509	1.38185	1.33160	1.48668	8.152
73 Butylbenzylphthalate	0.78611	0.80246	0.78933	0.74112	0.76341	0.77649	3.125

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 16-MAY-1995 11:52  
 End Cal Date : 16-MAY-1995 13:52  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950516.b/hclpw.m  
 Cal Date : 16-May-1995 15:06 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
-----							
74 3,3'-Dichlorobenzidine	0.40237	0.42551	0.42614	0.43275	0.44333	0.42602	3.530
75 Benzo[a]anthracene	1.20649	1.20060	1.19582	1.09984	1.09824	1.16020	4.823
77 Chrysene	1.11479	1.09687	1.05851	1.00840	1.01174	1.05806	4.566
78 bis(2-Ethylhexyl)phthalate	1.00490	1.02970	0.93553	0.89374	0.93701	0.96017	5.797
79 Di-n-octylphthalate	2.25909	2.50708	2.41641	2.45528	2.29662	2.38690	4.418
80 Benzo[b]fluoranthene	1.58278	1.59993	1.79840	1.59058	1.69843	1.65402	5.643
81 Benzo[k]fluoranthene	1.88456	2.04899	1.68314	1.59707	1.44851	1.73245	13.681
82 Benzo[a]pyrene	1.33619	1.38455	1.38442	1.32997	1.32330	1.35169	2.241
84 Indeno[1,2,3-cd]pyrene	1.24911	1.30200	1.30952	1.37565	1.42483	1.33222	5.146
85 Dibenzo[a,h]anthracene	1.01868	1.04135	1.05638	1.13636	1.15045	1.08065	5.465
86 Benzo[g,h,i]perylene	1.02385	1.02821	1.06118	1.11289	1.12912	1.07105	4.498
96 Benzidine	0.01623	0.01164	0.01311	0.01324	0.01420	0.01369	12.373
-----							
\$ 3 2-Fluorophenol	1.24714	1.35552	1.24210	1.15771	1.14358	1.22921	6.913
\$ 4 Phenol-d5	1.39429	1.45505	1.26936	1.12905	1.07570	1.26469	12.943
\$ 23 Nitrobenzene-d5	0.33050	0.32715	0.31698	0.30321	0.30369	0.31631	4.031
\$ 41 2-Fluorobiphenyl	1.42162	1.31597	1.16657	1.05235	1.01483	1.19427	14.479
\$ 61 2,4,6-Tribromophenol	0.15937	0.16154	0.15931	0.15670	0.18113	0.16361	6.077
\$ 72 Terphenyl-d14	1.15424	1.11113	1.08546	0.98061	0.98490	1.06326	7.290

Data File: /chem/h.i/h950516.b/h136ic5.d  
Report Date: 16-May-1995 15:14

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic5.d

Lab Smp Id:

Inj Date : 16-MAY-1995 13:52

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD020

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 6

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.550	2.546	(0.574)	40258	16	8
5 Phenol	94.00	4.162	4.170	(0.936)	66535	19	10
6 Aniline	93.00	4.185	4.193	(0.941)	53553	19	10
7 bis(2-Chloroethyl)ether	93.00	4.221	4.217	(0.949)	59497	19	10
9 2-Chlorophenol	128.00	4.292	4.300	(0.965)	57407	20	10
10 1,3-Dichlorobenzene	146.00	4.422	4.418	(0.995)	68846	20	10
12 1,4-Dichlorobenzene	146.00	4.458	4.466	(1.003)	69116	21	11
13 Benzyl alcohol	108.00	4.742	4.679	(1.067)	8633	17	8 (QM)
15 1,2-Dichlorobenzene	146.00	4.636	4.632	(1.043)	63807	21	10
16 2-Methylphenol	108.00	4.695	4.703	(1.056)	55039	19	9
18 bis(2-chloroisopropyl)ether	45.00	4.707	4.715	(1.059)	36182	20	10 (Q)
19 4-Methylphenol	108.00	4.825	4.833	(1.085)	54516	19	10
21 N-Nitroso-di-n-propylamine	70.00	4.837	4.845	(1.088)	29810	22	11
22 Hexachloroethane	117.00	4.920	4.916	(1.107)	24912	21	10
24 Nitrobenzene	77.00	4.979	4.987	(0.882)	46822	20	10
25 Isophorone	82.00	5.204	5.201	(0.922)	88468	20	10
26 2-Nitrophenol	139.00	5.287	5.295	(0.937)	31872	20	10 (a)
27 2,4-Dimethylphenol	107.00	5.335	5.331	(0.945)	56291	21	10
28 Benzoic acid	122.00	5.406	5.449	(0.958)	24583	20	10 (aQM)
29 bis(2-Chloroethoxy)methane	93.00	5.406	5.414	(0.958)	49580	20	10
30 2,4-Dichlorophenol	162.00	5.536	5.532	(0.981)	47031	21	11
31 1,2,4-Trichlorobenzene	180.00	5.607	5.603	(0.994)	51859	21	10
33 Naphthalene	128.00	5.667	5.675	(1.004)	157132	21	10
34 4-Chloroaniline	127.00	5.726	5.734	(1.015)	53060	22	11
35 Hexachlorobutadiene	225.00	5.844	5.852	(1.036)	31699	22	11
36 4-Chloro-3-methylphenol	107.00	6.235	6.232	(1.105)	43843	20	10
37 2-Methylnaphthalene	142.00	6.342	6.350	(1.124)	105625	22	11
38 Hexachlorocyclopentadiene	237.00	6.579	6.587	(0.887)	29816	19	10
39 2,4,6-Trichlorophenol	196.00	6.662	6.658	(0.898)	30201	20	10

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.709	6.717	(0.904)	33745	18	9 (a)
42 2-Chloronaphthalene	162.00	6.840	6.836	(0.922)	97965	21	10
43 2-Nitroaniline	65.00	6.958	6.966	(0.938)	21680	20	10 (a)
44 Dimethylphthalate	163.00	7.171	7.168	(0.966)	120261	21	11
45 2,6-Dinitrotoluene	165.00	7.231	7.239	(0.974)	27081	20	10
46 Acenaphthylene	152.00	7.266	7.263	(0.979)	158031	21	10
47 3-Nitroaniline	138.00	7.373	7.381	(0.994)	23829	19	10 (a)
49 Acenaphthene	153.00	7.456	7.452	(1.005)	94679	22	11
50 2,4-Dinitrophenol	184.00	7.480	7.488	(1.008)	6563	12	6 (aQ)
51 4-Nitrophenol	109.00	7.598	7.582	(1.024)	9185	17	8 (a)
52 Dibenzofuran	168.00	7.610	7.618	(1.026)	136668	21	10
53 2,4-Dinitrotoluene	165.00	7.634	7.630	(1.029)	33173	20	10
54 Diethylphthalate	149.00	7.883	7.891	(1.062)	126028	23	11
55 4-Chlorophenyl-phenylether	204.00	7.954	7.962	(1.072)	51658	22	11
56 Fluorene	166.00	7.965	7.962	(1.073)	97574	23	11
57 4-Nitroaniline	138.00	8.001	8.009	(1.078)	21615	19	10 (a)
58 4,6-Dinitro-2-methylphenol	198.00	8.048	8.056	(0.903)	13083	15	8 (a)
59 n-Nitrosodiphenylamine	169.00	8.084	8.080	(0.907)	63785	20	10
60 1,2-Diphenylhydrazine	77.00	8.108	8.116	(0.910)	169706	22	11
62 4-Bromophenyl-phenylether	248.00	8.451	8.448	(0.948)	32266	21	11
63 Hexachlorobenzene	283.70	8.605	8.613	(0.965)	39187	21	10
64 Pentachlorophenol	265.50	8.795	8.791	(0.987)	14744	15	7 (a)
66 Phenanthrene	178.00	8.937	8.945	(1.003)	135081	22	11
67 Anthracene	178.00	8.985	8.981	(1.008)	128575	20	10
68 Carbazole	167.00	9.139	9.147	(1.025)	107615	21	10
69 Di-n-butylphthalate	149.00	9.542	9.538	(1.070)	182448	23	11
70 Fluoranthene	202.00	10.158	10.166	(1.140)	116020	22	11
71 Pyrene	202.00	10.383	10.391	(0.882)	114502	20	10
73 Butylbenzylphthalate	149.00	11.094	11.090	(0.943)	56750	20	10
74 3,3'-Dichlorobenzidine	252.00	11.722	11.718	(0.996)	29047	19	9
75 Benzo[a]anthracene	228.00	11.746	11.754	(0.998)	87097	20	10
77 Chrysene	228.00	11.793	11.801	(1.002)	80477	20	10
78 bis(2-Ethylhexyl)phthalate	149.00	11.829	11.837	(1.005)	72544	20	10
79 Di-n-octylphthalate	149.00	12.717	12.725	(0.909)	99704	18	9
80 Benzo[b]fluoranthene	252.00	13.357	13.365	(0.955)	69855	20	10
81 Benzo[k]fluoranthene	252.00	13.393	13.401	(0.958)	83174	18	9
82 Benzo[a]pyrene	252.00	13.891	13.899	(0.993)	58972	19	10
84 Indeno[1,2,3-cd]pyrene	276.00	15.905	15.925	(1.137)	55129	19	10
85 Dibenz[a,h]anthracene	278.00	15.941	15.949	(1.140)	44959	20	10
86 Benzo[g,h,i]perylene	276.00	16.450	16.458	(1.176)	45187	20	10
\$ 3 2-Fluorophenol	112.00	3.427	3.423	(0.771)	53937	18	9 (R)
\$ 4 Phenol-d5	99.00	4.162	4.158	(0.936)	60301	19	10
\$ 61 2,4,6-Tribromophenol	329.70	8.226	8.234	(0.923)	16862	20	10
\$ 23 Nitrobenzene-d5	82.00	4.967	4.964	(0.880)	48961	20	10 (R)
\$ 41 2-Fluorobiphenyl	172.00	6.733	6.729	(0.907)	111784	22	11 (R)
\$ 72 Terphenyl-d14	244.00	10.537	10.545	(0.895)	83325	21	10 (R)
* 11 1,4-Dichlorobenzene-d4	152.00	4.446	4.454	(1.000)	86497	40	
* 32 Naphthalene-d8	136.00	5.643	5.651	(1.000)	296285	40	
* 48 Acenaphthene-d10	164.00	7.420	7.417	(1.000)	157263	40	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
65 Phenanthrene-d10	188.00	8.913	8.922	1.000)	211613	40	
76 Chrysene-d12	240.00	11.769	11.777	(1.000)	144381	40	
83 Perylene-d12	264.00	13.985	13.993	(1.000)	88269	40	
17 ortho-Cresol	108.00	4.695	4.703	(1.056)	55039	19	9
20 meta,para-Cresol	108.00	4.825	4.833	(1.085)	54516	19	10
96 Benzidine	184.00	10.537	10.770	(0.895)	1172	28	14

# QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation (BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic5.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD020

Calibration Date: 05/16/95  
Calibration Time: 1152

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	86497	-16.17
32 Naphthalene-d8	348029	174014	696058	296285	-14.87
48 Acenaphthene-d10	171424	85712	342848	157263	-8.26
65 Phenanthrene-d10	222794	111397	445588	211613	-5.02
76 Chrysene-d12	137788	68894	275576	144381	4.78
83 Perylene-d12	83290	41645	166580	88269	5.98

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.45	-0.18
32 Naphthalene-d8	5.65	5.15	6.15	5.64	-0.14
48 Acenaphthene-d10	7.42	6.92	7.92	7.42	0.05
65 Phenanthrene-d10	8.92	8.42	9.42	8.91	-0.09
76 Chrysene-d12	11.78	11.28	12.28	11.77	-0.07
83 Perylene-d12	13.99	13.49	14.49	13.99	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/h.1/h950516.b/h1361c5.d

Date : 16-MAY-95 13:52

Client ID:

Sample Info: STD-8270M/1X

Volume Injected (uL): 2.0

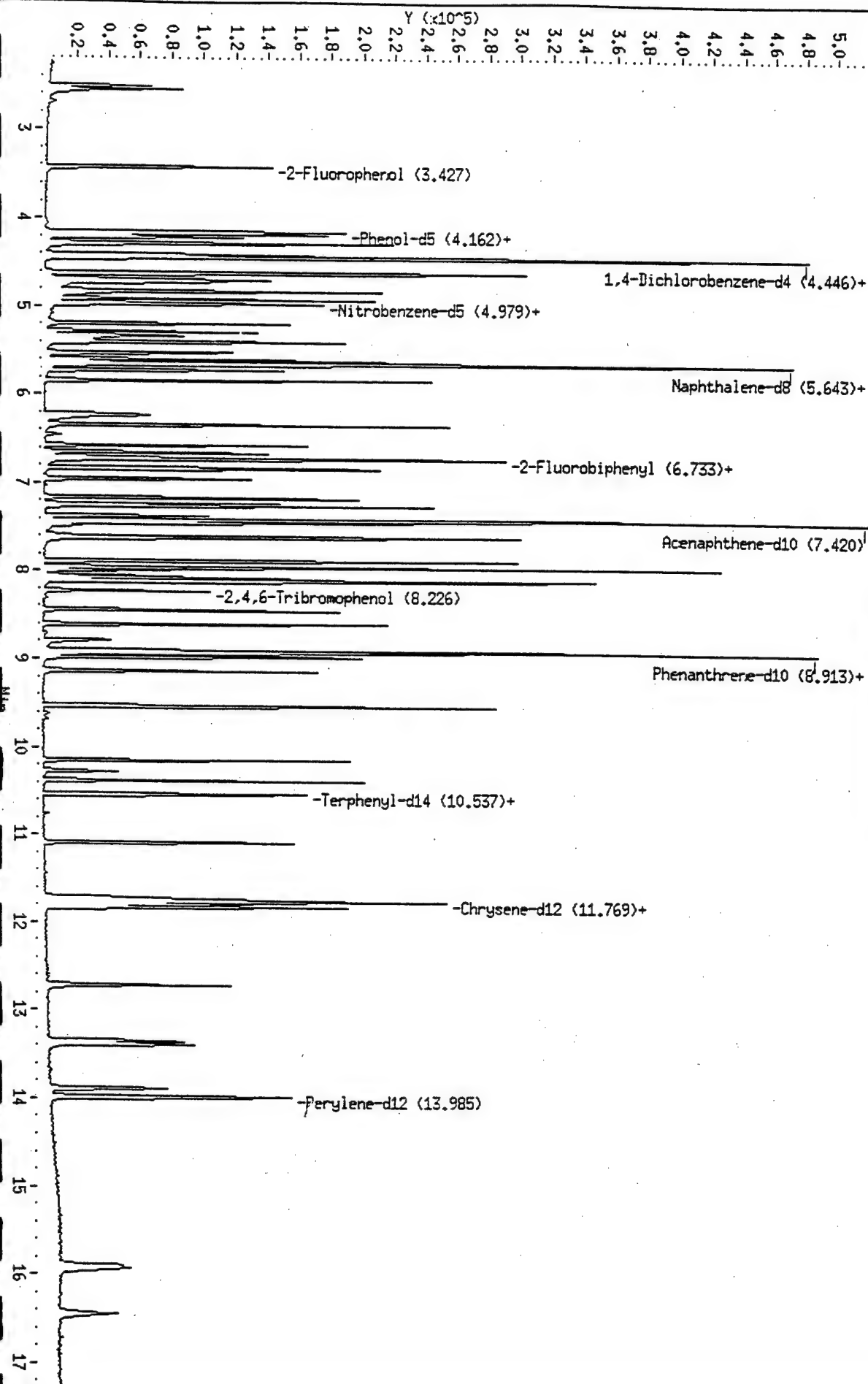
Column phase:

Instrument: h.1

Operator: LH

Column diameter: 0.25

/chem/h.1/h950516.b/h1361c5.d



SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic1.d  
Lab Smp Id:  
Inj Date : 16-MAY-1995 11:52  
Operator : LH  
Smp Info : STD-8270W/1X  
Misc Info : 950516 STD050  
Comment :  
Method : /chem/h.i/h950516.b/hclpw.m  
Meth Date : 16-May-1995 15:10 liping  
Cal Date : 16-MAY-1995 11:52  
Als bottle: 2  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: h.i

Quant Type: ISTD  
Cal File: h136ic1.d

Compound Sublist: std.sub

Compounds	QUANT	SIG						CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00		2.546	2.546	(0.572)		146575	50	25
5 Phenol	94.00		4.170	4.170	(0.936)		205267	50	25
6 Aniline	93.00		4.193	4.193	(0.941)		166726	50	25
7 bis(2-Chloroethyl)ether	93.00		4.217	4.217	(0.947)		183611	50	25
9 2-Chlorophenol	128.00		4.300	4.300	(0.965)		174942	50	25
10 1,3-Dichlorobenzene	146.00		4.418	4.418	(0.992)		202199	50	25
12 1,4-Dichlorobenzene	146.00		4.466	4.466	(1.003)		194044	50	25
13 Benzyl alcohol	108.00		4.679	4.679	(1.051)		30275	50	25 (M)
15 1,2-Dichlorobenzene	146.00		4.632	4.632	(1.040)		180932	50	25
16 2-Methylphenol	108.00		4.703	4.703	(1.056)		172933	50	25
18 bis(2-chloroisopropyl)ether	45.00		4.715	4.715	(1.059)		109058	50	25
19 4-Methylphenol	108.00		4.833	4.833	(1.085)		167905	50	25
21 N-Nitroso-di-n-propylamine	70.00		4.845	4.845	(1.088)		80476	50	25
22 Hexachloroethane	117.00		4.916	4.916	(1.104)		70413	50	25
24 Nitrobenzene	77.00		4.987	4.987	(0.883)		135316	50	25
25 Isophorone	82.00		5.201	5.201	(0.920)		255738	50	25
26 2-Nitrophenol	139.00		5.295	5.295	(0.937)		95121	50	25
27 2,4-Dimethylphenol	107.00		5.331	5.331	(0.943)		159742	50	25
28 Benzoic acid	122.00		5.449	5.449	(0.964)		71466	50	25
29 bis(2-Chloroethoxy)methane	93.00		5.414	5.414	(0.958)		143361	50	25
30 2,4-Dichlorophenol	162.00		5.532	5.532	(0.979)		130189	50	25
31 1,2,4-Trichlorobenzene	180.00		5.603	5.603	(0.992)		146082	50	25
33 Naphthalene	128.00		5.675	5.675	(1.004)		436051	50	25
34 4-Chloroaniline	127.00		5.734	5.734	(1.015)		144131	50	25
35 Hexachlorobutadiene	225.00		5.852	5.852	(1.036)		85151	50	25
36 4-Chloro-3-methylphenol	107.00		6.232	6.232	(1.103)		126545	50	25
37 2-Methylnaphthalene	142.00		6.350	6.350	(1.124)		280364	50	25
38 Hexachlorocyclopentadiene	237.00		6.587	6.587	(0.888)		84983	50	25
39 2,4,6-Trichlorophenol	196.00		6.658	6.658	(0.898)		82150	50	25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.717	6.717	(0.906)	102052	50	25
42 2-Chloronaphthalene	162.00	6.836	6.836	(0.922)	255849	50	25
43 2-Nitroaniline	65.00	6.966	6.966	(0.939)	60275	50	25
44 Dimethylphthalate	163.00	7.168	7.168	(0.966)	307292	50	25
45 2,6-Dinitrotoluene	165.00	7.239	7.239	(0.976)	72022	50	25
46 Acenaphthylene	152.00	7.263	7.263	(0.979)	409270	50	25
47 3-Nitroaniline	138.00	7.381	7.381	(0.995)	66646	50	25
49 Acenaphthene	153.00	7.452	7.452	(1.005)	237386	50	25
50 2,4-Dinitrophenol	184.00	7.488	7.488	(1.010)	30259	50	25
51 4-Nitrophenol	109.00	7.582	7.582	(1.022)	30138	50	25
52 Dibenzofuran	168.00	7.618	7.618	(1.027)	353082	50	25
53 2,4-Dinitrotoluene	165.00	7.630	7.630	(1.029)	91273	50	25
54 Diethylphthalate	149.00	7.891	7.891	(1.064)	303006	50	25
55 4-Chlorophenyl-phenylether	204.00	7.962	7.962	(1.073)	125960	50	25
56 Fluorene	166.00	7.962	7.962	(1.073)	234490	50	25
57 4-Nitroaniline	138.00	8.009	8.009	(1.080)	61548	50	25
58 4,6-Dinitro-2-methylphenol	198.00	8.056	8.056	(0.903)	45458	50	25
59 n-Nitrosodiphenylamine	169.00	8.080	8.080	(0.906)	164956	50	25
60 1,2-Diphenylhydrazine	77.00	8.116	8.116	(0.910)	400382	50	25
62 4-Bromophenyl-phenylether	248.00	8.448	8.448	(0.947)	79542	50	25
63 Hexachlorobenzene	283.70	8.613	8.613	(0.965)	97763	50	25
64 Pentachlorophenol	265.50	8.791	8.791	(0.985)	52335	50	25
66 Phenanthrene	178.00	8.945	8.945	(1.003)	327111	50	25
67 Anthracene	178.00	8.981	8.981	(1.007)	334435	50	25
68 Carbazole	167.00	9.147	9.147	(1.025)	272581	50	25
69 Di-n-butylphthalate	149.00	9.538	9.538	(1.069)	422572	50	25
70 Fluoranthene	202.00	10.166	10.166	(1.139)	276166	50	25
71 Pyrene	202.00	10.391	10.391	(0.882)	273639	50	25
73 Butylbenzylphthalate	149.00	11.090	11.090	(0.942)	138212	50	25
74 3,3'-Dichlorobenzidine	252.00	11.718	11.718	(0.995)	73287	50	25
75 Benzo[a]anthracene	228.00	11.754	11.754	(0.998)	206785	50	25
77 Chrysene	228.00	11.801	11.801	(1.002)	188920	50	25
78 bis(2-Ethylhexyl)phthalate	149.00	11.837	11.837	(1.005)	177351	50	25
79 Di-n-octylphthalate	149.00	12.725	12.725	(0.909)	261018	50	25
80 Benzo(b)fluoranthene	252.00	13.365	13.365	(0.955)	166573	50	25
81 Benzo(k)fluoranthene	252.00	13.401	13.401	(0.958)	213325	50	25
82 Benzo[a]pyrene	252.00	13.899	13.899	(0.993)	144149	50	25
84 Indeno[1,2,3-cd]pyrene	276.00	15.925	15.925	(1.138)	135554	50	25
85 Dibenz[a,h]anthracene	278.00	15.949	15.949	(1.140)	108418	50	25
86 Benzo[g,h,i]perylene	276.00	16.458	16.458	(1.176)	107050	50	25
\$ 3 2-Fluorophenol	112.00	3.423	3.423	(0.769)	174833	50	25
\$ 4 Phenol-d5	99.00	4.158	4.158	(0.933)	187670	50	25
\$ 61 2,4,6-Tribromophenol	329.70	8.234	8.234	(0.923)	44987	50	25
\$ 23 Nitrobenzene-d5	82.00	4.964	4.964	(0.878)	142323	50	25
\$ 41 2-Fluorobiphenyl	172.00	6.729	6.729	(0.907)	281986	50	25
\$ 72 Terphenyl-d14	244.00	10.545	10.545	(0.895)	191375	50	25
* 11 1,4-Dichlorobenzene-d4	152.00	4.454	4.454	(1.000)	103183	40	
* 32 Naphthalene-d8	136.00	5.651	5.651	(1.000)	348029	40	
* 48 Acenaphthene-d10	164.00	7.417	7.417	(1.000)	171424	40	

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.922	8.922	(1.000)	222794	40	
* 76 Chrysene-d12	240.00	11.777	11.777	(1.000)	137788	40	
* 83 Perylene-d12	264.00	13.993	13.993	(1.000)	83290	40	
17 ortho-Cresol	108.00	4.703	4.703	(1.056)	172933	50	25
20 meta,para-Cresol	108.00	4.833	4.833	(1.085)	167905	50	25
96 Benzidine	184.00	10.770	10.770	(0.914)	2005	50	25

#### QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic1.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD050

Calibration Date: 05/16/95  
Calibration Time: 1152

Level: LOW  
Sample Type: WATER

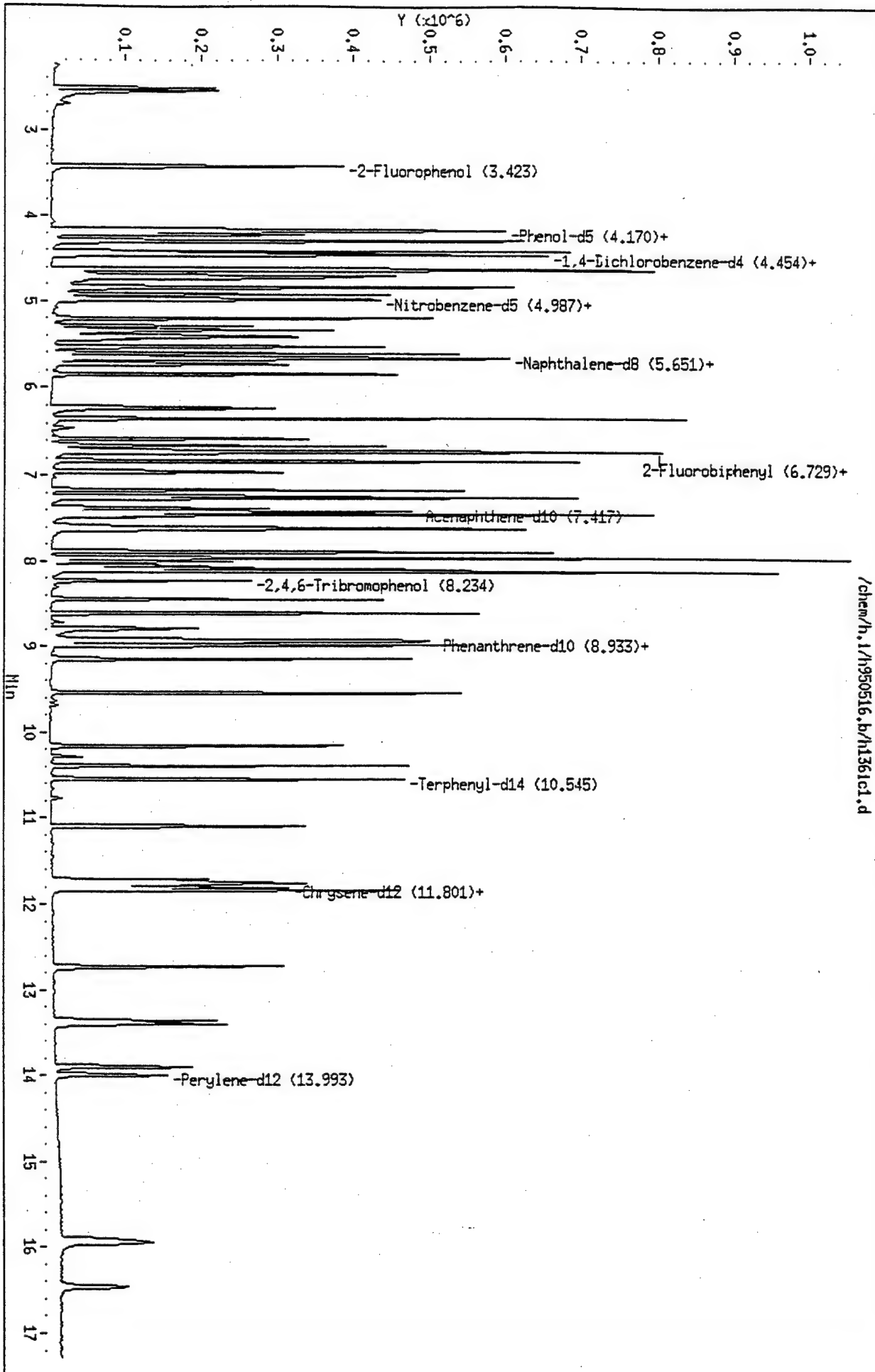
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	103183	0.00
32 Naphthalene-d8	348029	174014	696058	348029	0.00
48 Acenaphthene-d10	171424	85712	342848	171424	0.00
65 Phenanthrene-d10	222794	111397	445588	222794	0.00
76 Chrysene-d12	137788	68894	275576	137788	0.00
83 Perylene-d12	83290	41645	166580	83290	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.45	0.00
32 Naphthalene-d8	5.65	5.15	6.15	5.65	0.00
48 Acenaphthene-d10	7.42	6.92	7.92	7.42	0.00
65 Phenanthrene-d10	8.92	8.42	9.42	8.92	0.00
76 Chrysene-d12	11.78	11.28	12.28	11.78	0.00
83 Perylene-d12	13.99	13.49	14.49	13.99	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c1.d  
Date: 16-MAY-95 11:52  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic4.d

Lab Smp Id:

Inj Date : 16-MAY-1995 14:16

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD080

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.548	2.546	(0.573)	188941	65	32
5 Phenol	94.00	4.171	4.170	(0.939)	275716	67	34
6 Aniline	93.00	4.195	4.193	(0.944)	255180	77	38
7 bis(2-Chloroethyl)ether	93.00	4.219	4.217	(0.949)	253177	69	35
9 2-Chlorophenol	128.00	4.302	4.300	(0.968)	260817	75	37
10 1,3-Dichlorobenzene	146.00	4.420	4.418	(0.995)	298691	74	37
12 1,4-Dichlorobenzene	146.00	4.456	4.466	(1.003)	292325	76	38
13 Benzyl alcohol	108.00	4.788	4.679	(1.077)	49264	82	41 (QM)
15 1,2-Dichlorobenzene	146.00	4.634	4.632	(1.043)	257245	71	36
16 2-Methylphenol	108.00	4.693	4.703	(1.056)	255747	74	37
18 bis(2-chloroisopropyl)ether	45.00	4.717	4.715	(1.061)	153364	71	35
19 4-Methylphenol	108.00	4.835	4.833	(1.088)	235987	71	35
21 N-Nitroso-di-n-propylamine	70.00	4.847	4.845	(1.091)	124427	78	39
22 Hexachloroethane	117.00	4.918	4.916	(1.107)	110271	79	39
24 Nitrobenzene	77.00	4.989	4.987	(0.884)	212202	77	38
25 Isophorone	82.00	5.202	5.201	(0.922)	389517	75	37
26 2-Nitrophenol	139.00	5.285	5.295	(0.937)	151284	78	39
27 2,4-Dimethylphenol	107.00	5.333	5.331	(0.945)	272911	84	42
28 Benzoic acid	122.00	5.475	5.449	(0.971)	132238	91	45
29 bis(2-Chloroethoxy)methane	93.00	5.404	5.414	(0.958)	208455	71	36
30 2,4-Dichlorophenol	162.00	5.534	5.532	(0.981)	210066	79	40
31 1,2,4-Trichlorobenzene	180.00	5.605	5.603	(0.994)	224678	75	38
33 Naphthalene	128.00	5.665	5.675	(1.004)	635864	72	36
34 4-Chloroaniline	127.00	5.724	5.734	(1.015)	248494	84	42
35 Hexachlorobutadiene	225.00	5.842	5.852	(1.036)	145720	84	42
36 4-Chloro-3-methylphenol	107.00	6.233	6.232	(1.105)	222884	86	43
37 2-Methylnaphthalene	142.00	6.352	6.350	(1.126)	442101	77	39
38 Hexachlorocyclopentadiene	237.00	6.577	6.587	(0.887)	162874	88	44
39 2,4,6-Trichlorophenol	196.00	6.660	6.658	(0.898)	136235	76	38

Compounds	QUANT	SIG	CONCENTRATIONS					
			MASS	RT	EXP RT	REL RT	ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	----	--	-----	-----	-----	-----	-----	
40 2,4,5-Trichlorophenol	196.00		6.707	6.717	(0.904)	183810	82	41
42 2-Chloronaphthalene	162.00		6.838	6.836	(0.922)	411469	74	37
43 2-Nitroaniline	65.00		6.956	6.966	(0.938)	108730	82	41
44 Dimethylphthalate	163.00		7.170	7.168	(0.966)	499610	74	37
45 2,6-Dinitrotoluene	165.00		7.241	7.239	(0.976)	129019	82	41
46 Acenaphthylene	152.00		7.264	7.263	(0.979)	662983	74	37
47 3-Nitroaniline	138.00		7.383	7.381	(0.995)	123112	84	42
49 Acenaphthene	153.00		7.454	7.452	(1.005)	386814	74	37
50 2,4-Dinitrophenol	184.00		7.478	7.488	(1.008)	70750	110	53
51 4-Nitrophenol	109.00		7.584	7.582	(1.022)	69934	110	53
52 Dibenzofuran	168.00		7.608	7.618	(1.026)	562640	73	36
53 2,4-Dinitrotoluene	165.00		7.632	7.630	(1.029)	158658	80	40
54 Diethylphthalate	149.00		7.892	7.891	(1.064)	525637	79	40
55 4-Chlorophenyl-phenylether	204.00		7.952	7.962	(1.072)	204094	74	37
56 Fluorene	166.00		7.964	7.962	(1.073)	375787	73	37
57 4-Nitroaniline	138.00		8.011	8.009	(1.080)	115306	86	43
58 4,6-Dinitro-2-methylphenol	198.00		8.058	8.056	(0.904)	96206	91	46
59 n-Nitrosodiphenylamine	169.00		8.082	8.080	(0.907)	287922	75	38
60 1,2-Diphenylhydrazine	77.00		8.118	8.116	(0.911)	688452	74	37
62 4-Bromophenyl-phenylether	248.00		8.449	8.448	(0.948)	141928	77	38
63 Hexachlorobenzene	283.70		8.603	8.613	(0.965)	171407	76	38
64 Pentachlorophenol	265.50		8.793	8.791	(0.987)	105835	87	44
66 Phenanthrene	178.00		8.935	8.945	(1.003)	574740	76	38
67 Anthracene	178.00		8.983	8.981	(1.008)	552606	71	36
68 Carbazole	167.00		9.137	9.147	(1.025)	484893	77	38
69 Di-n-butylphthalate	149.00		9.528	9.538	(1.069)	711404	72	36
70 Fluoranthene	202.00		10.156	10.166	(1.140)	510736	80	40
71 Pyrene	202.00		10.381	10.391	(0.883)	493428	78	39
73 Butylbenzylphthalate	149.00		11.080	11.090	(0.943)	252074	79	39
74 3,3'-Dichlorobenzidine	252.00		11.708	11.718	(0.996)	136090	80	40
75 Benzo[a]anthracene	228.00		11.732	11.754	(0.998)	381888	80	40
77 Chrysene	228.00		11.791	11.801	(1.003)	338037	77	39
78 bis(2-Ethylhexyl)phthalate	149.00		11.815	11.837	(1.005)	298762	73	36
79 Di-n-octylphthalate	149.00		12.704	12.725	(0.909)	468657	77	38
80 Benzo[b]fluoranthene	252.00		13.344	13.365	(0.955)	348797	90	45
81 Benzo[k]fluoranthene	252.00		13.391	13.401	(0.958)	326441	66	33
82 Benzo[a]pyrene	252.00		13.877	13.899	(0.993)	268506	80	40
84 Indeno[1,2,3-cd]pyrene	276.00		15.891	15.925	(1.137)	253979	80	40
85 Dibenz[a,h]anthracene	278.00		15.927	15.949	(1.140)	204883	81	40
86 Benzo[g,h,i]perylene	276.00		16.436	16.458	(1.176)	205814	82	41
\$ 3 2-Fluorophenol	112.00		3.425	3.423	(0.771)	255106	73	37
\$ 4 Phenol-d5	99.00		4.160	4.158	(0.936)	260704	70	35
\$ 61 2,4,6-Tribromophenol	329.70		8.224	8.234	(0.923)	82352	79	39
\$ 23 Nitrobenzene-d5	82.00		4.965	4.964	(0.880)	224916	78	39
\$ 41 2-Fluorobiphenyl	172.00		6.731	6.729	(0.907)	437090	71	35
\$ 72 Terphenyl-d14	244.00		10.535	10.545	(0.896)	346643	78	39
* 11 1,4-Dichlorobenzene-d4	152.00		4.444	4.454	(1.000)	102691	40	
* 32 Naphthalene-d8	136.00		5.641	5.651	(1.000)	354785	40	
* 48 Acenaphthene-d10	164.00		7.418	7.417	(1.000)	187340	40	



Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
65 Phenanthrene-d10	188.00	8.912	8.922	(1.000)	258459	40	
76 Chrysene-d12	240.00	11.756	11.777	(1.000)	159676	40	
83 Perylene-d12	254.00	13.972	13.993	(1.000)	96974	40	
17 ortho-Cresol	108.00	4.693	4.703	(1.056)	255747	74	37
20 meta,para-Cresol	108.00	4.835	4.833	(1.088)	235987	71	35
96 Benzidine	184.00	10.760	10.770	(0.915)	4187	90	45

QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic4.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD080

Calibration Date: 05/16/95  
Calibration Time: 1152  
Level: LOW  
Sample Type: WATER

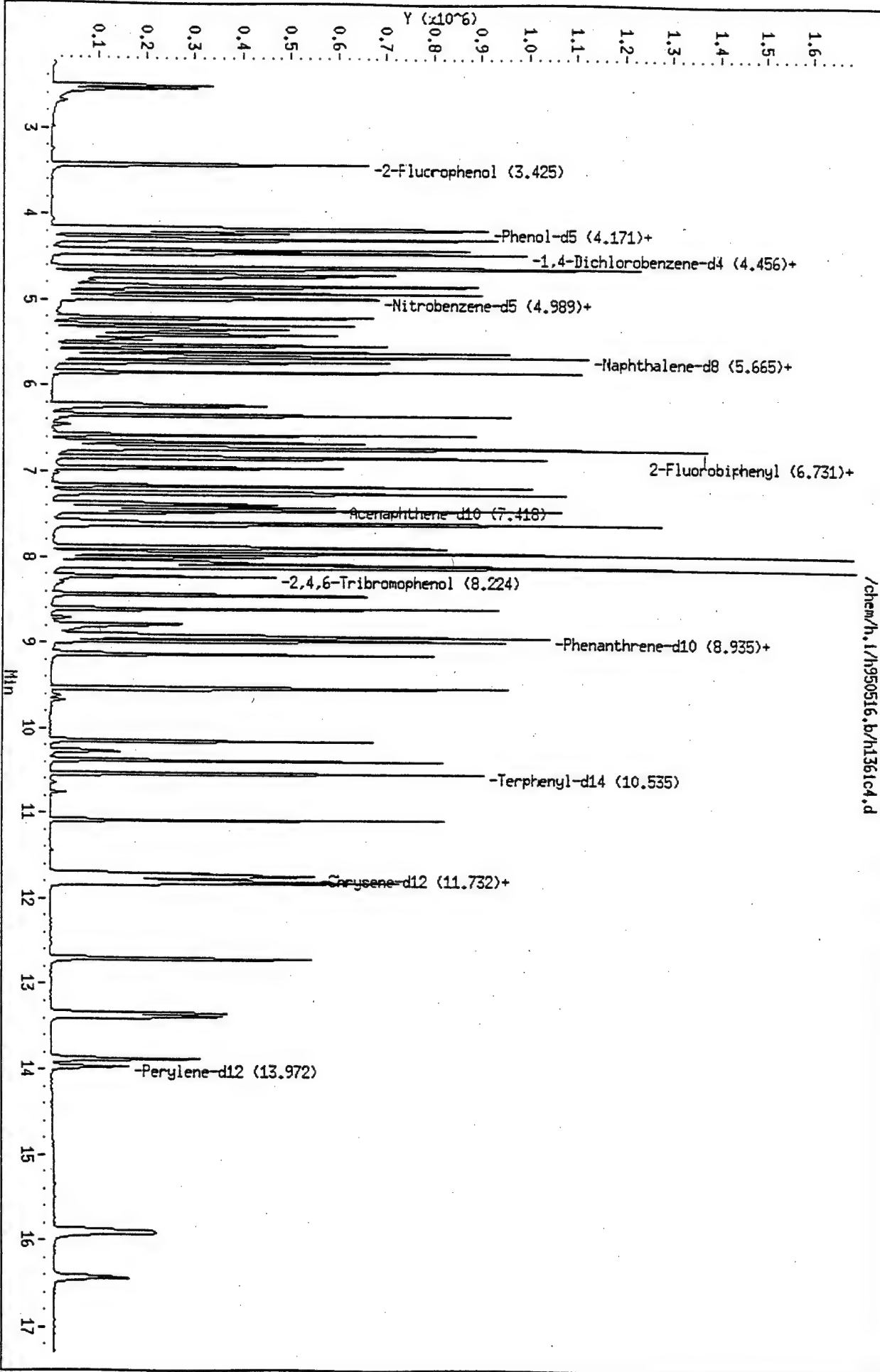
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	102691	-0.48
32 Naphthalene-d8	348029	174014	696058	354785	1.94
48 Acenaphthene-d10	171424	85712	342848	187340	9.28
65 Phenanthrene-d10	222794	111397	445588	258459	16.01
76 Chrysene-d12	137788	68894	275576	159676	15.89
83 Perylene-d12	83290	41645	166580	96974	16.43

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.44	-0.22
32 Naphthalene-d8	5.65	5.15	6.15	5.64	-0.18
48 Acenaphthene-d10	7.42	6.92	7.92	7.42	0.02
65 Phenanthrene-d10	8.92	8.42	9.42	8.91	-0.11
76 Chrysene-d12	11.78	11.28	12.28	11.76	-0.19
83 Perylene-d12	13.99	13.49	14.49	13.97	-0.16

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c4.d  
Date : 16-MAY-95 14:16  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic3.d

Lab Smp Id:

Inj Date : 16-MAY-1995 12:41

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD120

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 4

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.547	2.546	(0.572)	313371	96	48
5 Phenol	94.00	4.183	4.170	(0.939)	389614	86	43 (Q)
6 Aniline	93.00	4.195	4.193	(0.941)	420610	110	57
7 bis(2-Chloroethyl)ether	93.00	4.230	4.217	(0.949)	373614	92	46
9 2-Chlorophenol	128.00	4.313	4.300	(0.968)	388309	100	50
10 1,3-Dichlorobenzene	146.00	4.420	4.418	(0.992)	439830	98	49
12 1,4-Dichlorobenzene	146.00	4.467	4.466	(1.003)	427559	99	50
13 Benzyl alcohol	108.00	4.740	4.679	(1.064)	73603	110	55 (QM)
15 1,2-Dichlorobenzene	146.00	4.633	4.632	(1.040)	376343	94	47
16 2-Methylphenol	108.00	4.704	4.703	(1.056)	422160	110	55
18 bis(2-chloroisopropyl)ether	45.00	4.716	4.715	(1.058)	229872	95	48
19 4-Methylphenol	108.00	4.846	4.833	(1.088)	336572	90	45
21 N-Nitroso-di-n-propylamine	70.00	4.858	4.845	(1.090)	187335	100	52
22 Hexachloroethane	117.00	4.917	4.916	(1.104)	169968	110	54
24 Nitrobenzene	77.00	5.000	4.987	(0.885)	324480	100	53
25 Isophorone	82.00	5.226	5.201	(0.925)	631868	110	54
26 2-Nitrophenol	139.00	5.297	5.295	(0.937)	236270	110	55
27 2,4-Dimethylphenol	107.00	5.344	5.331	(0.945)	425892	120	59
28 Benzoic acid	122.00	5.510	5.449	(0.975)	239260	150	74
29 bis(2-Chloroethoxy)methane	93.00	5.415	5.414	(0.958)	315477	97	48
30 2,4-Dichlorophenol	162.00	5.546	5.532	(0.981)	321306	110	54
31 1,2,4-Trichlorobenzene	180.00	5.617	5.603	(0.994)	340696	100	51
33 Naphthalene	128.00	5.676	5.675	(1.004)	949251	96	48
34 4-Chloroaniline	127.00	5.735	5.734	(1.015)	378800	120	58
35 Hexachlorobutadiene	225.00	5.854	5.852	(1.036)	226704	120	59
36 4-Chloro-3-methylphenol	107.00	6.233	6.232	(1.103)	352731	120	61
37 2-Methylnaphthalene	142.00	6.351	6.350	(1.124)	652800	100	51
38 Hexachlorocyclopentadiene	237.00	6.588	6.587	(0.887)	256398	130	64
39 2,4,6-Trichlorophenol	196.00	6.671	6.658	(0.898)	213151	110	55

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.719	6.717	(0.904)	271545	110	57
42 2-Chloronaphthalene	162.00	6.849	6.836	(0.922)	609702	100	51
43 2-Nitroaniline	65.00	6.968	6.966	(0.938)	166624	120	59
44 Dimethylphthalate	163.00	7.181	7.168	(0.967)	725772	100	50
45 2,6-Dinitrotoluene	165.00	7.252	7.239	(0.976)	180916	110	54
46 Acenaphthylene	152.00	7.276	7.263	(0.979)	944965	98	49
47 3-Nitroaniline	138.00	7.394	7.381	(0.995)	177344	110	57
49 Acenaphthene	153.00	7.465	7.452	(1.005)	564816	100	51
50 2,4-Dinitrophenol	184.00	7.489	7.488	(1.008)	111259	160	78
51 4-Nitrophenol	109.00	7.596	7.582	(1.022)	104999	150	74 (Q)
52 Dibenzofuran	168.00	7.619	7.618	(1.026)	793997	96	48
53 2,4-Dinitrotoluene	165.00	7.643	7.630	(1.029)	224595	100	52
54 Diethylphthalate	149.00	7.904	7.891	(1.064)	730138	100	51
55 4-Chlorophenyl-phenylether	204.00	7.963	7.962	(1.072)	279818	95	47
56 Fluorene	166.00	7.975	7.962	(1.073)	517183	94	47
57 4-Nitroaniline	138.00	8.022	8.009	(1.080)	162254	110	56
58 4,6-Dinitro-2-methylphenol	198.00	8.070	8.056	(0.904)	135735	130	66
59 n-Nitrosodiphenylamine	169.00	8.093	8.080	(0.907)	394150	110	53
60 1,2-Diphenylhydrazine	77.00	8.129	8.116	(0.911)	980691	110	54
62 4-Bromophenyl-phenylether	248.00	8.461	8.448	(0.948)	194355	110	54
63 Hexachlorobenzene	283.70	8.615	8.613	(0.965)	239544	110	54
64 Pentachlorophenol	265.50	8.804	8.791	(0.987)	154669	130	66
66 Phenanthrene	178.00	8.947	8.945	(1.003)	741575	100	50
67 Anthracene	178.00	8.994	8.981	(1.008)	743469	99	49
68 Carbazole	167.00	9.160	9.147	(1.027)	641416	100	52
69 Di-n-butylphthalate	149.00	9.551	9.538	(1.070)	961210	100	50
70 Fluoranthene	202.00	10.167	10.166	(1.139)	668680	110	54
71 Pyrene	202.00	10.392	10.391	(0.882)	640318	100	52
73 Butylbenzylphthalate	149.00	11.103	11.090	(0.943)	343416	110	55
74 3,3'-Dichlorobenzidine	252.00	11.731	11.718	(0.996)	200527	120	61
75 Benzo[a]anthracene	228.00	11.755	11.754	(0.998)	509641	110	55
77 Chrysene	228.00	11.814	11.801	(1.003)	467268	110	55
78 bis(2-Ethylhexyl)phthalate	149.00	11.838	11.837	(1.005)	414137	100	52
79 Di-n-octylphthalate	149.00	12.727	12.725	(0.909)	697804	120	59
80 Benzo[b]fluoranthene	252.00	13.367	13.365	(0.955)	452050	120	60
81 Benzo[k]fluoranthene	252.00	13.414	13.401	(0.959)	453894	94	47
82 Benzo[a]pyrene	252.00	13.912	13.899	(0.994)	377984	120	58
84 Indeno[1,2,3-cd]pyrene	276.00	15.938	15.925	(1.139)	390966	130	63
85 Dibenz[a,h]anthracene	278.00	15.962	15.949	(1.141)	322959	130	65
86 Benzo[g,h,i]perylene	276.00	16.483	16.458	(1.178)	316289	130	65
S 3 2-Fluorophenol	112.00	3.436	3.423	(0.771)	397060	100	51
S 4 Phenol-d5	99.00	4.171	4.158	(0.936)	387229	93	46
S 61 2,4,6-Tribromophenol	329.70	8.236	8.234	(0.923)	117707	120	58
S 23 Nitrobenzene-d5	82.00	4.977	4.964	(0.880)	358924	110	56
S 41 2-Fluorobiphenyl	172.00	6.742	6.729	(0.907)	635030	96	48
S 72 Terphenyl-d14	244.00	10.546	10.545	(0.895)	454390	100	53
* 11 1,4-Dichlorobenzene-d4	152.00	4.455	4.454	(1.000)	114323	40	
* 32 Naphthalene-d8	136.00	5.652	5.651	(1.000)	394576	40	
* 48 Acenaphthene-d10	164.00	7.430	7.417	(1.000)	201146	40	

Compounds	QUANT SIG					CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)	
-----	----	--	-----	-----	-----	-----	-----	
* 65 Phenanthrene-d10	188.00	8.923	8.922	(1.000)	250391	40		
* 76 Chrysene-d12	240.00	11.779	11.777	(1.000)	154459	40		
* 83 Perylene-d12	264.00	13.995	13.993	(1.000)	94735	40		
17 ortho-Cresol	108.00	4.704	4.703	(1.056)	422160	110	55	
20 meta,para-Cresol	108.00	4.846	4.833	(1.088)	336572	90	45	
96 Benzidine	184.00	10.771	10.770	(0.914)	6137	140	68	

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic3.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD120

Calibration Date: 05/16/95  
Calibration Time: 1152  
Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	114323	10.80
32 Naphthalene-d8	348029	174014	696058	394576	13.37
48 Acenaphthene-d10	171424	85712	342848	201146	17.34
65 Phenanthrene-d10	222794	111397	445588	250391	12.39
76 Chrysene-d12	137788	68894	275576	154459	12.10
83 Perylene-d12	83290	41645	166580	94735	13.74

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.46	0.03
32 Naphthalene-d8	5.65	5.15	6.15	5.65	0.02
48 Acenaphthene-d10	7.42	6.92	7.92	7.43	0.18
65 Phenanthrene-d10	8.92	8.42	9.42	8.92	0.01
76 Chrysene-d12	11.78	11.28	12.28	11.78	0.01
83 Perylene-d12	13.99	13.49	14.49	13.99	0.01

AREA UPPER LIMIT = +100% of internal standard area.

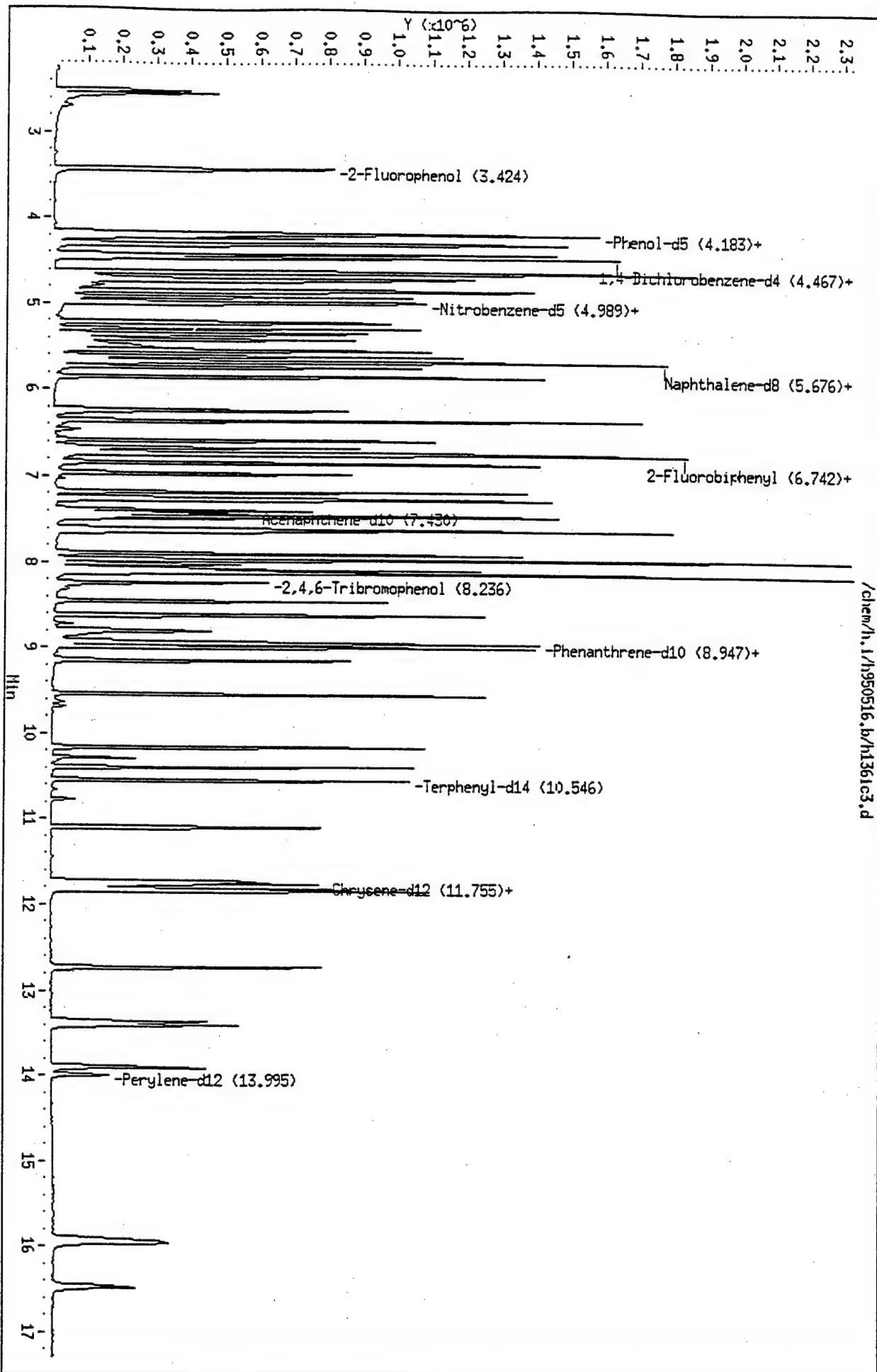
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c3.d  
Date: 16-MAY-95 12:41  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





Data File: /chem/h.i/h950516.b/h136ic2.d  
Report Date: 16-May-1995 15:13

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic2.d

Lab Smp Id:

Inj Date : 16-MAY-1995 14:41

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD160

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Sals bottle: 3

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
2 Pyridine	79.00	2.546	2.546	(0.573)	329510	130	67
5 Phenol	94.00	4.182	4.170	(0.941)	375622	110	55 (Q)
6 Aniline	93.00	4.193	4.193	(0.944)	365661	130	66
7 bis(2-Chloroethyl)ether	93.00	4.217	4.217	(0.949)	375204	120	61
9 2-Chlorophenol	128.00	4.300	4.300	(0.968)	382636	130	66
10 1,3-Dichlorobenzene	146.00	4.419	4.418	(0.995)	440865	130	65
12 1,4-Dichlorobenzene	146.00	4.454	4.466	(1.003)	445009	140	69
13 Benzyl alcohol	108.00	4.786	4.679	(1.077)	67471	130	67 (QM)
15 1,2-Dichlorobenzene	146.00	4.632	4.632	(1.043)	371528	120	61
16 2-Methylphenol	108.00	4.691	4.703	(1.056)	376067	130	65
18 bis(2-chloroisopropyl)ether	45.00	4.703	4.715	(1.059)	219587	120	60
19 4-Methylphenol	108.00	4.833	4.833	(1.088)	313610	110	56
21 N-Nitroso-di-n-propylamine	70.00	4.845	4.845	(1.091)	172548	130	64 (Q)
22 Hexachloroethane	117.00	4.916	4.916	(1.107)	169889	140	72
24 Nitrobenzene	77.00	4.987	4.987	(0.884)	312306	140	71
25 Isophorone	82.00	5.213	5.201	(0.924)	574751	140	69
26 2-Nitrophenol	139.00	5.284	5.295	(0.937)	222713	140	72
27 2,4-Dimethylphenol	107.00	5.343	5.331	(0.947)	409095	160	79
28 Benzoic acid	122.00	5.485	5.449	(0.973)	222556	190	96
29 bis(2-Chloroethoxy)methane	93.00	5.402	5.414	(0.958)	286611	120	62
30 2,4-Dichlorophenol	162.00	5.533	5.532	(0.981)	299989	140	71
31 1,2,4-Trichlorobenzene	180.00	5.604	5.603	(0.994)	325869	140	69
33 Naphthalene	128.00	5.663	5.675	(1.004)	893982	130	63
34 4-Chloroaniline	127.00	5.722	5.734	(1.015)	351590	150	75
35 Hexachlorobutadiene	225.00	5.841	5.852	(1.036)	219914	160	80
36 4-Chloro-3-methylphenol	107.00	6.220	6.232	(1.103)	324914	160	79
37 2-Methylnaphthalene	142.00	6.338	6.350	(1.124)	611089	130	67
38 Hexachlorocyclopentadiene	237.00	6.575	6.587	(0.888)	238578	170	84
39 2,4,6-Trichlorophenol	196.00	6.658	6.658	(0.899)	188233	140	69

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.706	6.717	(0.906)	257166	150	76
42 2-Chloronaphthalene	162.00	6.824	6.836	(0.922)	561754	130	66
43 2-Nitroaniline	65.00	6.955	6.966	(0.939)	151110	150	75
44 Dimethylphthalate	163.00	7.168	7.168	(0.968)	659341	130	64
45 2,6-Dinitrotoluene	165.00	7.239	7.239	(0.978)	165254	140	69
46 Acenaphthylene	152.00	7.251	7.263	(0.979)	863263	130	63
47 3-Nitroaniline	138.00	7.381	7.381	(0.997)	161876	150	73
49 Acenaphthene	153.00	7.440	7.452	(1.005)	507530	130	64
50 2,4-Dinitrophenol	184.00	7.476	7.488	(1.010)	99712	200	99
51 4-Nitrophenol	109.00	7.583	7.582	(1.024)	92459	180	92 (Q)
52 Dibenzofuran	168.00	7.606	7.618	(1.027)	727775	120	62
53 2,4-Dinitrotoluene	165.00	7.630	7.630	(1.030)	203427	130	67
54 Diethylphthalate	149.00	7.879	7.891	(1.064)	662276	130	66
55 4-Chlorophenyl-phenylether	204.00	7.950	7.962	(1.074)	263879	120	63
56 Fluorene	166.00	7.950	7.962	(1.074)	477106	120	61
57 4-Nitroaniline	138.00	8.009	8.009	(1.082)	141993	140	69
58 4,6-Dinitro-2-methylphenol	198.00	8.057	8.056	(0.905)	119211	170	86
59 n-Nitrosodiphenylamine	169.00	8.080	8.080	(0.908)	351323	140	70
60 1,2-Diphenylhydrazine	77.00	8.104	8.116	(0.911)	937736	150	77
62 4-Bromophenyl-phenylether	248.00	8.436	8.448	(0.948)	174803	140	72
63 Hexachlorobenzene	283.70	8.602	8.613	(0.967)	219083	150	73
64 Pentachlorophenol	265.50	8.780	8.791	(0.987)	138373	170	87
66 Phenanthrene	178.00	8.922	8.945	(1.003)	64857	140	68
67 Anthracene	178.00	8.969	8.981	(1.008)	670722	130	66
68 Carbazole	167.00	9.135	9.147	(1.027)	563919	140	68
69 Di-n-butylphthalate	149.00	9.526	9.538	(1.071)	855201	130	66
70 Fluoranthene	202.00	10.142	10.166	(1.140)	593938	140	70
71 Pyrene	202.00	10.367	10.391	(0.882)	581341	130	67
73 Butylbenzylphthalate	149.00	11.078	11.090	(0.943)	333282	150	76
74 3,3'-Dichlorobenzidine	252.00	11.707	11.718	(0.996)	193546	170	83
75 Benzo[a]anthracene	228.00	11.730	11.754	(0.998)	479463	150	73
77 Chrysene	228.00	11.789	11.801	(1.003)	441697	150	74
78 bis(2-Ethylhexyl)phthalate	149.00	11.813	11.837	(1.005)	409071	140	73
79 Di-n-octylphthalate	149.00	12.702	12.725	(0.909)	688326	150	73
80 Benzo[b]fluoranthene	252.00	13.342	13.365	(0.955)	509041	170	85
81 Benzo[k]fluoranthene	252.00	13.377	13.401	(0.958)	434137	110	56
82 Benzo[a]pyrene	252.00	13.875	13.899	(0.993)	396609	150	76
84 Indeno[1,2,3-cd]pyrene	276.00	15.890	15.925	(1.137)	427038	180	88
85 Dibenz[a,h]anthracene	278.00	15.925	15.949	(1.140)	344805	180	88
86 Benzo[g,h,i]perylene	276.00	16.447	16.458	(1.177)	338410	180	88
\$ 3 2-Fluorophenol	112.00	3.423	3.423	(0.771)	393997	130	67
\$ 4 Phenol-d5	99.00	4.170	4.158	(0.939)	370609	120	59
\$ 61 2,4,6-Tribromophenol	329.70	8.223	8.234	(0.924)	123123	180	90
\$ 23 Nitrobenzene-d5	82.00	4.964	4.964	(0.880)	32080	150	74 (R)
\$ 41 2-Fluorobiphenyl	172.00	6.729	6.729	(0.909)	578635	120	62 (R)
\$ 72 Terphenyl-d14	244.00	10.533	10.545	(0.896)	429978	140	71 (R)
* 11 1,4-Dichlorobenzene-d4	152.00	4.442	4.454	(1.000)	86132	40	
* 32 Naphthalene-d8	136.00	5.639	5.651	(1.000)	281607	40	
* 48 Acenaphthene-d10	164.00	7.405	7.417	(1.000)	142545	40	

Compounds	QUANT SIG					CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)	
-----	----	--	-----	-----	-----	-----	-----	
* 65 Phenanthrene-d10	188.00	8.898	8.922	(1.000)	169938	40		
* 76 Chrysene-d12	240.00	11.754	11.777	(1.000)	109143	40		
* 83 Perylene-d12	264.00	13.970	13.993	(1.000)	74928	40		
17 ortho-Cresol	108.00	4.691	4.703	(1.056)	376067	130		65
20 meta,para-Cresol	108.00	4.833	4.833	(1.088)	313610	110		56
96 Benzidine	184.00	10.747	10.770	(0.914)	6200	200		98

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h136ic2.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950516.b/hclpw.m  
 Misc Info: 950516 STD160

Calibration Date: 05/16/95  
 Calibration Time: 1152  
 Level: LOW  
 Sample Type: WATER

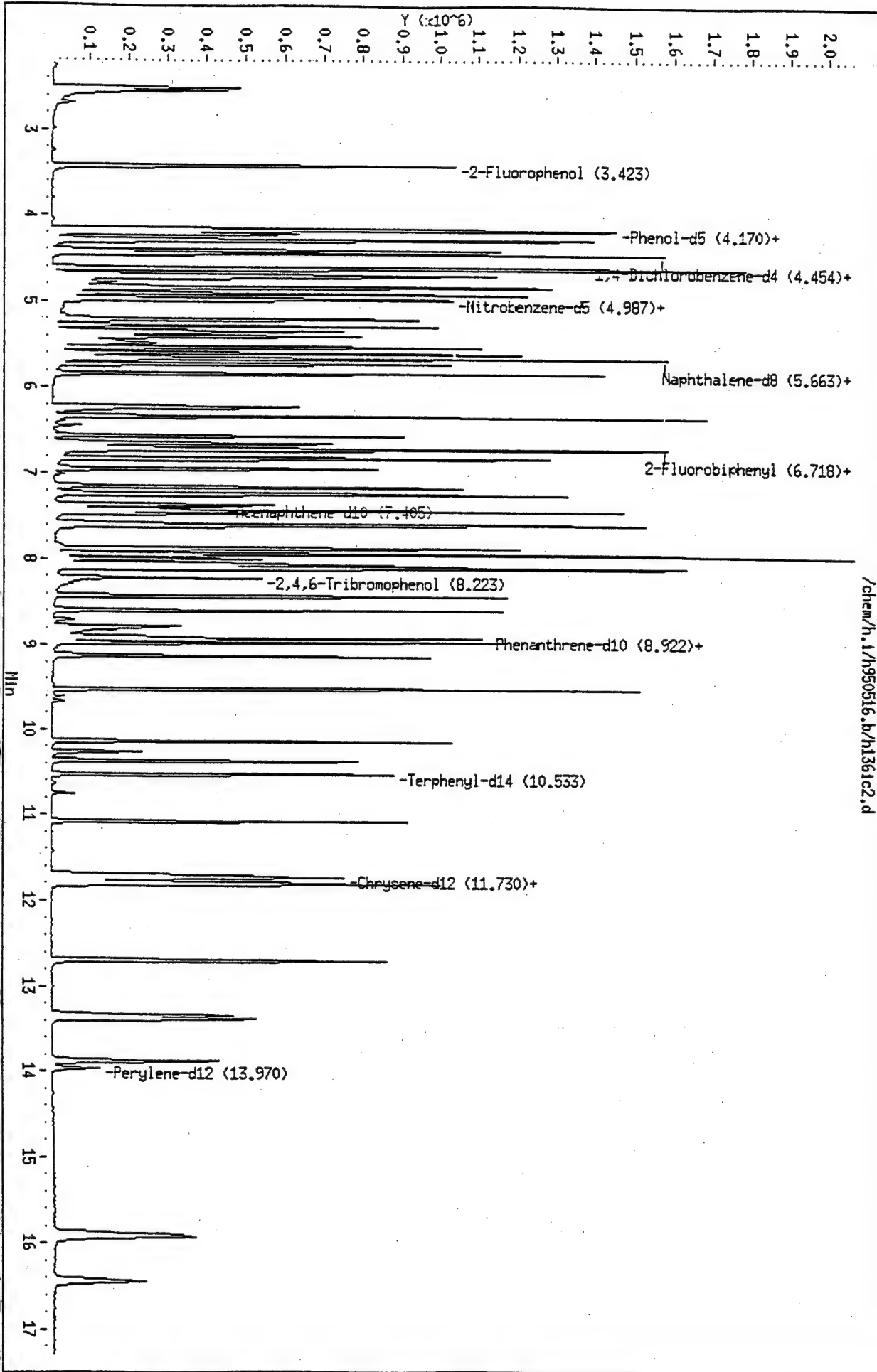
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	86132	-16.53
32 Naphthalene-d8	348029	174014	696058	281607	-19.09
48 Acenaphthene-d10	171424	85712	342848	142545	-16.85
65 Phenanthrene-d10	222794	111397	445588	169938	-23.72
76 Chrysene-d12	137788	68894	275576	109143	-20.79
83 Perylene-d12	83290	41645	166580	74928	-10.04

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.44	-0.26
32 Naphthalene-d8	5.65	5.15	6.15	5.64	-0.21
48 Acenaphthene-d10	7.42	6.92	7.92	7.40	-0.16
65 Phenanthrene-d10	8.92	8.42	9.42	8.90	-0.26
76 Chrysene-d12	11.78	11.28	12.28	11.75	-0.20
83 Perylene-d12	13.99	13.49	14.49	13.97	-0.17

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c2.d  
Date: 16-MAY-95 14:41  
Client ID:  
Sample Info: STD-8270M/LX  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h136ic1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 16-MAY-1995 11:52  
Init. Calibration Date(s): 05/16/95 05/16/95  
Init. Calibration Times: 11:52 13:52  
Method File: /chem/h.i/h950516.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
2 Pyridine	0.971	1.136	0.010	17.0	50.0
5 Phenol	1.340	1.591	0.800	18.8	25.0
6 Aniline	1.212	1.293	0.010	6.6	100.0
7 bis(2-Chloroethyl)ether	1.242	1.424	0.700	14.6	25.0
9 2-Chlorophenol	1.239	1.356	0.800	9.4	25.0
10 1,3-Dichlorobenzene	1.435	1.568	0.600	9.2	25.0
12 1,4-Dichlorobenzene	1.413	1.504	0.500	6.5	25.0
13 Benzyl alcohol	0.217	0.235	0.010	8.2	100.0
15 1,2-Dichlorobenzene	1.261	1.403	0.400	11.2	25.0
16 2-Methylphenol	1.236	1.341	0.700	8.5	25.0
18 bis(2-chloroisopropyl)ether	0.747	0.846	0.010	13.1	100.0
19 4-Methylphenol	1.121	1.302	0.600	16.2	25.0
21 N-Nitroso-di-n-propylamine	0.593	0.624	0.500	5.2	25.0
22 Hexachloroethane	0.530	0.546	0.300	3.1	25.0
24 Nitrobenzene	0.296	0.311	0.200	5.3	25.0
25 Isophorone	0.556	0.588	0.400	5.8	50.0
26 2-Nitrophenol	0.209	0.219	0.100	4.7	25.0
27 2,4-Dimethylphenol	0.371	0.367	0.200	1.0	25.0
28 Benzoic acid	0.183	0.164	0.010	10.4	40.0
29 bis(2-Chloroethoxy)methane	0.296	0.330	0.300	11.4	25.0
30 2,4-Dichlorophenol	0.290	0.299	0.200	3.2	25.0
31 1,2,4-Trichlorobenzene	0.316	0.336	0.200	6.3	25.0
33 Naphthalene	0.911	1.002	0.700	10.0	25.0
34 4-Chloroaniline	0.334	0.331	0.010	0.9	40.0
35 Hexachlorobutadiene	0.200	0.196	0.010	2.3	40.0
36 4-Chloro-3-methylphenol	0.297	0.291	0.200	2.2	25.0
37 2-Methylnaphthalene	0.615	0.644	0.400	4.8	25.0
38 Hexachlorocyclopentadiene	0.411	0.397	0.010	3.4	40.0
39 2,4,6-Trichlorophenol	0.363	0.383	0.200	5.6	25.0
40 2,4,5-Trichlorophenol	0.459	0.476	0.200	3.7	25.0
42 2-Chloronaphthalene	1.107	1.194	0.800	7.9	25.0
43 2-Nitroaniline	0.278	0.281	0.010	1.3	40.0
44 Dimethylphthalate	1.331	1.434	0.010	7.7	40.0
45 2,6-Dinitrotoluene	0.323	0.336	0.200	4.1	25.0
46 Acenaphthylene	1.754	1.910	1.300	8.9	25.0
47 3-Nitroaniline	0.304	0.311	0.010	2.3	40.0
49 Acenaphthene	1.034	1.108	0.800	7.1	25.0
50 2,4-Dinitrophenol	0.155	0.141	0.010	8.6	40.0
51 4-Nitrophenol	0.156	0.141	0.010	9.9	40.0
52 Dibenzofuran	1.496	1.648	0.800	10.1	25.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h136ic1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 16-MAY-1995 11:52  
Init. Calibration Date(s): 05/16/95 05/16/95  
Init. Calibration Times: 11:52 13:52  
Method File: /chem/h.i/h950516.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	MIN %D	MAX %D
53 2,4-Dinitrotoluene	0.400	0.426	0.200	6.5	40.0
54 Diethylphthalate	1.358	1.414	0.010	4.1	40.0
55 4-Chlorophenyl-phenylether	0.543	0.588	0.400	8.2	25.0
56 Fluorene	1.006	1.094	0.900	8.7	25.0
57 4-Nitroaniline	0.278	0.287	0.010	3.5	40.0
58 4,6-Dinitro-2-methylphenol	0.166	0.163	0.010	1.6	50.0
59 n-Nitrosodiphenylamine	0.559	0.592	0.010	6.0	40.0
60 1,2-Diphenylhydrazine	1.412	1.438	0.010	1.8	40.0
62 4-Bromophenyl-phenylether	0.276	0.286	0.100	3.4	25.0
63 Hexachlorobenzene	0.339	0.351	0.100	3.6	25.0
64 Pentachlorophenol	0.188	0.188	0.050	0.2	25.0
66 Phenanthrene	1.109	1.175	0.700	5.9	25.0
67 Anthracene	1.092	1.201	0.700	9.9	25.0
68 Carbazole	0.923	0.979	0.010	6.0	40.0
69 Di-n-butylphthalate	1.431	1.517	0.010	6.0	40.0
70 Fluoranthene	0.968	0.992	0.600	2.4	25.0
71 Pyrene	1.487	1.589	0.600	6.9	25.0
73 Butylbenzylphthalate	0.776	0.802	0.010	3.3	40.0
74 3,3'-Dichlorobenzidine	0.426	0.426	0.010	0.1	40.0
75 Benzo[a]anthracene	1.160	1.201	0.800	3.5	25.0
77 Chrysene	1.058	1.097	0.700	3.7	25.0
78 bis(2-Ethylhexyl)phthalate	0.960	1.030	0.010	7.2	40.0
79 Di-n-octylphthalate	2.387	2.507	0.010	5.0	40.0
80 Benzo[b]fluoranthene	1.654	1.600	0.700	3.3	25.0
81 Benzo[k]fluoranthene	1.732	2.049	0.700	18.3	25.0
82 Benzo[a]pyrene	1.352	1.385	0.700	2.4	25.0
84 Indeno[1,2,3-cd]pyrene	1.332	1.302	0.500	2.3	25.0
85 Dibenz[a,h]anthracene	1.081	1.041	0.400	3.6	25.0
86 Benzo[g,h,i]perylene	1.071	1.028	0.500	4.0	25.0
\$ 3 2-Fluorophenol	1.229	1.356	0.600	10.3	25.0
\$ 4 Phenol-d5	1.265	1.455	0.800	15.1	25.0
\$ 61 2,4,6-Tribromophenol	0.164	0.162	0.010	1.3	40.0
\$ 23 Nitrobenzene-d5	0.316	0.327	0.200	3.4	25.0
\$ 41 2-Fluorobiphenyl	1.194	1.316	0.700	10.2	25.0
\$ 72 Terphenyl-d14	1.063	1.111	0.500	4.5	25.0
17 ortho-Cresol	1.236	1.341	0.700	8.5	25.0
20 meta,para-Cresol	1.121	1.302	0.600	16.2	25.0
96 Benzidine	0.014	0.012	0.010	14.9	100.0

SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic1.d

Lab Smp Id:

Inj Date : 16-MAY-1995 11:52

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD050

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	----	--	-----	-----	-----	-----	-----	
2 Pyridine		79.00	2.546	2.546	(0.572)	146575	50	25
5 Phenol		94.00	4.170	4.170	(0.936)	205267	50	25
6 Aniline		93.00	4.193	4.193	(0.941)	166726	50	25
7 bis(2-Chloroethyl)ether		93.00	4.217	4.217	(0.947)	183611	50	25
9 2-Chlorophenol		128.00	4.300	4.300	(0.965)	174942	50	25
10 1,3-Dichlorobenzene		146.00	4.418	4.418	(0.992)	202199	50	25
12 1,4-Dichlorobenzene		146.00	4.466	4.466	(1.003)	194044	50	25
13 Benzyl alcohol		108.00	4.679	4.679	(1.051)	30275	50	25 (M)
15 1,2-Dichlorobenzene		146.00	4.632	4.632	(1.040)	180932	50	25
16 2-Methylphenol		108.00	4.703	4.703	(1.056)	172933	50	25
18 bis(2-chloroisopropyl)ether		45.00	4.715	4.715	(1.059)	109058	50	25
19 4-Methylphenol		108.00	4.833	4.833	(1.085)	167905	50	25
21 N-Nitroso-di-n-propylamine		70.00	4.845	4.845	(1.088)	80476	50	25
22 Hexachloroethane		117.00	4.916	4.916	(1.104)	70413	50	25
24 Nitrobenzene		77.00	4.987	4.987	(0.883)	135316	50	25
25 Isophorone		82.00	5.201	5.201	(0.920)	255738	50	25
26 2-Nitrophenol		139.00	5.295	5.295	(0.937)	95121	50	25
27 2,4-Dimethylphenol		107.00	5.331	5.331	(0.943)	159742	50	25
28 Benzoic acid		122.00	5.449	5.449	(0.964)	71466	50	25
29 bis(2-Chloroethoxy)methane		93.00	5.414	5.414	(0.958)	143361	50	25
30 2,4-Dichlorophenol		162.00	5.532	5.532	(0.979)	130189	50	25
31 1,2,4-Trichlorobenzene		180.00	5.603	5.603	(0.992)	146082	50	25
33 Naphthalene		128.00	5.675	5.675	(1.004)	436051	50	25
34 4-Chloroaniline		127.00	5.734	5.734	(1.015)	144131	50	25
35 Hexachlorobutadiene		225.00	5.852	5.852	(1.036)	85151	50	25
36 4-Chloro-3-methylphenol		107.00	6.232	6.232	(1.103)	126545	50	25
37 2-Methylnaphthalene		142.00	6.350	6.350	(1.124)	280364	50	25
38 Hexachlorocyclopentadiene		237.00	6.587	6.587	(0.888)	84983	50	25
39 2,4,6-Trichlorophenol		196.00	6.658	6.658	(0.898)	82150	50	25



Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
10 2,4,5-Trichlorophenol	196.00	6.717	6.717	(0.906)	102052	50	25
2 2-Chloronaphthalene	152.00	6.836	6.836	(0.922)	255849	50	25
43 2-Nitroaniline	65.00	6.966	6.966	(0.939)	60275	50	25
44 Dimethylphthalate	163.00	7.168	7.168	(0.966)	307292	50	25
5 2,6-Dinitrotoluene	165.00	7.239	7.239	(0.976)	72022	50	25
6 Acenaphthylene	152.00	7.263	7.263	(0.979)	409270	50	25
47 3-Nitroaniline	138.00	7.381	7.381	(0.995)	66646	50	25
49 Acenaphthene	153.00	7.452	7.452	(1.005)	237386	50	25
0 2,4-Dinitrophenol	184.00	7.488	7.488	(1.010)	30259	50	25
51 4-Nitrophenol	109.00	7.582	7.582	(1.022)	30138	50	25
52 Dibenzofuran	168.00	7.618	7.618	(1.027)	353082	50	25
3 2,4-Dinitrotoluene	165.00	7.630	7.630	(1.029)	91273	50	25
4 Diethylphthalate	149.00	7.891	7.891	(1.064)	303006	50	25
55 4-Chlorophenyl-phenylether	204.00	7.962	7.962	(1.073)	125960	50	25
56 Fluorene	166.00	7.962	7.962	(1.073)	234490	50	25
7 4-Nitroaniline	138.00	8.009	8.009	(1.080)	61548	50	25
8 4,6-Dinitro-2-methylphenol	198.00	8.056	8.056	(0.903)	45458	50	25
59 n-Nitrosodiphenylamine	169.00	8.080	8.080	(0.906)	164956	50	25
0 1,2-Diphenylhydrazine	77.00	8.116	8.116	(0.910)	400382	50	25
2 4-Bromophenyl-phenylether	248.00	8.448	8.448	(0.947)	79542	50	25
63 Hexachlorobenzene	283.70	8.613	8.613	(0.965)	97763	50	25
64 Pentachlorophenol	265.50	8.791	8.791	(0.985)	52335	50	25
6 Phenanthrene	178.00	8.945	8.945	(1.003)	327111	50	25
7 Anthracene	178.00	8.981	8.981	(1.007)	334435	50	25
68 Carbazole	167.00	9.147	9.147	(1.025)	272581	50	25
9 Di-n-butylphthalate	149.00	9.538	9.538	(1.069)	422572	50	25
0 Fluoranthene	202.00	10.166	10.166	(1.139)	276166	50	25
71 Pyrene	202.00	10.391	10.391	(0.882)	273639	50	25
73 Butylbenzylphthalate	149.00	11.090	11.090	(0.942)	138212	50	25
4 3,3'-Dichlorobenzidine	252.00	11.718	11.718	(0.995)	73287	50	25
5 Benzo[a]anthracene	228.00	11.754	11.754	(0.998)	206785	50	25
77 Chrysene	228.00	11.801	11.801	(1.002)	188920	50	25
8 bis(2-Ethylhexyl)phthalate	149.00	11.837	11.837	(1.005)	177351	50	25
9 Di-n-octylphthalate	149.00	12.725	12.725	(0.909)	261018	50	25
80 Benzo[b]fluoranthene	252.00	13.365	13.365	(0.955)	166573	50	25
81 Benzo[k]fluoranthene	252.00	13.401	13.401	(0.958)	213325	50	25
2 Benzo[a]pyrene	252.00	13.899	13.899	(0.993)	144149	50	25
4 Indeno(1,2,3-cd)pyrene	276.00	15.925	15.925	(1.138)	135554	50	25
85 Dibenz[a,h]anthracene	278.00	15.949	15.949	(1.140)	108418	50	25
6 Benzo[g,h,i]perylene	276.00	16.458	16.458	(1.176)	107050	50	25
3 2-Fluorophenol	112.00	3.423	3.423	(0.769)	174833	50	25
4 Phenol-d5	99.00	4.158	4.158	(0.933)	187670	50	25
61 2,4,6-Tribromophenol	329.70	8.234	8.234	(0.923)	44987	50	25
23 Nitrobenzene-d5	82.00	4.964	4.964	(0.878)	142323	50	25
41 2-Fluorobiphenyl	172.00	6.729	6.729	(0.907)	281986	50	25
72 Terphenyl-d14	244.00	10.545	10.545	(0.895)	191375	50	25
11 1,4-Dichlorobenzene-d4	152.00	4.454	4.454	(1.000)	103183	40	
32 Naphthalene-d8	136.00	5.651	5.651	(1.000)	348029	40	
48 Acenaphthene-d10	164.00	7.417	7.417	(1.000)	171424	40	

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CN-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.922	8.922	(1.000)	222794	40	
* 76 Chrysene-d12	240.00	11.777	11.777	(1.000)	137788	40	
* 83 Perylene-d12	254.00	13.993	13.993	(1.000)	83290	40	
17 ortho-Cresol	108.00	4.703	4.703	(1.056)	172933	50	25
20 meta,para-Cresol	108.00	4.833	4.833	(1.085)	167905	50	25
96 Benzidine	184.00	10.770	10.770	0.914)	2005	50	25

QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic1.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD050

Calibration Date: 05/16/95  
Calibration Time: 1152  
Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	103183	0.00
32 Naphthalene-d8	348029	174014	696058	348029	0.00
48 Acenaphthene-d10	171424	85712	342848	171424	0.00
65 Phenanthrene-d10	222794	111397	445588	222794	0.00
76 Chrysene-d12	137788	68894	275576	137788	0.00
83 Perylene-d12	83290	41645	166580	83290	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.45	0.00
32 Naphthalene-d8	5.65	5.15	6.15	5.65	0.00
48 Acenaphthene-d10	7.42	6.92	7.92	7.42	0.00
65 Phenanthrene-d10	8.92	8.42	9.42	8.92	0.00
76 Chrysene-d12	11.78	11.28	12.28	11.78	0.00
83 Perylene-d12	13.99	13.49	14.49	13.99	0.00

AREA UPPER LIMIT = +100% of internal standard area.

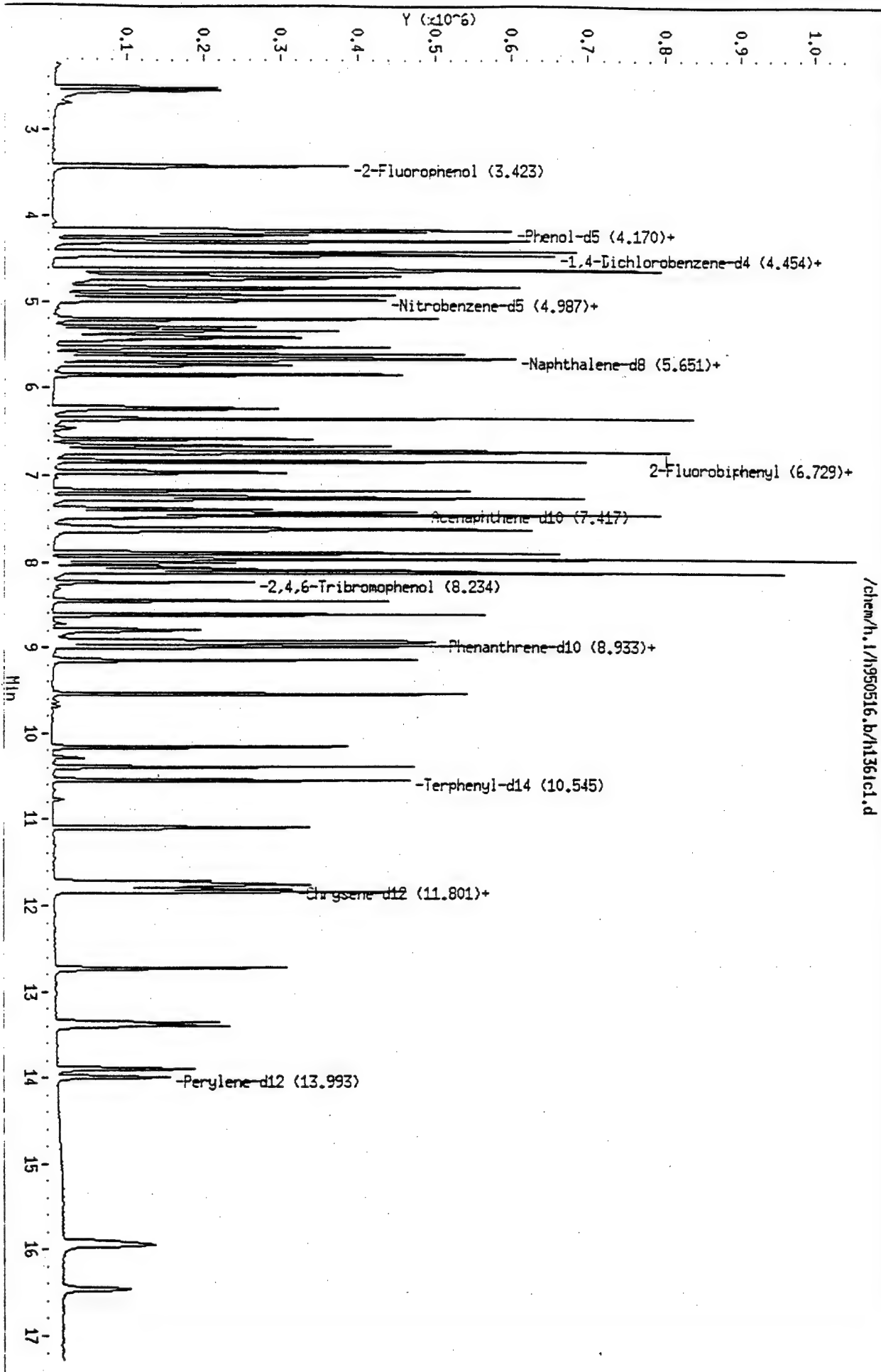
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c1.d  
Date: 16-MAY-95 11:52  
Client ID:  
Sample Info: STD-82704/IX  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



## ICP Spectroscopy Method 6010 Quality Control Report



Matrix: Water

Units: mg/L

Analyst: DQ

Date: 051795 Time: 1010 File Name: 051795DQ

Checked: *J. Marro*  
5/18/95

## Laboratory Control Sample

Element	Mth. Blank	True Value	Result	% Recovery	Lower Limit	Upper Limit
Silver						
Aluminum						
Arsenic						
Barium						
Beryllium						
Calcium						
Cadmium	ND	2.00	2.053	103	1.60	2.40
Cobalt						
Chromium	ND	2.00	2.059	103	1.60	2.40
Copper						
Iron						
Potassium	ND	20.00	18.940	95	16.00	24.00
Magnesium						
Manganese						
Sodium						
Nickel						
Lead						
Antimony						
Selenium						
Thallium						
Vanadium						
Zinc						

## Work Orders in Batch

Work Order	Fractions
95-05-209	06C
95-05-216	01A

## Matrix Spike - Spike Duplicate Results

Work Order Spiked: 95-05-209 06C

Element	Sample Result	Spike Added	Matrix Spike Result	Matrix Spike Recovery	Matrix Spike Duplicate Result	Matrix Spike Duplicate Recovery	QC Limits % Recovery	Spike RPD %	QC Limits %
Silver									
Aluminum									
Arsenic									
Barium									
Beryllium									
Calcium									
Cadmium	ND	1.0	1.03	103	1.041	104	80 120	1.1	20.0
Cobalt									
Chromium	ND	1.0	1.028	103	1.038	104	80 120	1.0	20.0
Copper									
Iron									
Potassium	ND	10.0	9.411	94	9.838	98	80 120	4.4	20.0
Magnesium									
Manganese									
Sodium									
Nickel									
Lead									
Antimony									
Selenium									
Thallium									
Vanadium									
Zinc									

*J. Williams* 5/19/95  
 Idelis Williams, QC Officer









# SPL QUALITY CONTROL SUMMARY

Atomic Absorption Analysis

Rev. 4/94

Element: Pb  
Test Code: PBS G  
Method: P3050G  
Instrument: B

Date: 5/17/95  
Time: 08:39  
File #: 0517A

Analyst: WJEC  
Matrix: Soil ☒ Soil ☐ Water ☐ Leachate: ☐ Water ☐ Oil ☐ Other

Units: mg/kg

Sample #'s in Batch

04699-3A-	7A								
04701-1A-	6A								
04968-1A-	15A								
05209-1c-	Sc								

Blank and Check Standard				Matrix Spike and Spike Duplicate Data					
Sample ID	Method	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec.
04701-1A	MLD	162.0	78.4%	26.5	50.0	67.2	68.1	81.4%	83.2%
*04968-6A	MLD	162.0	78.4%	24.9	50.0	56.1	58.0	62.4%	66.2%

• FLAGS •

• = Values Outside QC Range

MS or MSD out of QA/QC Limits (% Rec. 75-125)

RPD out of QA/QC Limits (20%)

Soil LCS % Rec. Range

Sample used for QA/QC only

Analyst

WJEC

Date

5/17/95

Approved By

WJEC

Date

5-17-95

Date

5-18-95





# Wet Chemistry QA/QC Validation Report

WETDUPCALC Rev. 4/94

Test Name: moisture  
V Test Code: MO154D Date: 5/11/95 Analyst: CA/ST  
Standard: Q1D Time: 8:50 am Matrix: ☐ Liquid ☒ Soil ☐ Other  
Samples in Batch: 19 Reporting Units: g/g

Sample #'s in Batch:

5209-1B-5B	9505330-1B-3B 3C
5226-1B	9505331-1B 3B 4A
5248-6C	9505327-3A-4A 6A-7A
5281-9D	

Standards	Actual Concentration	Theoretical Concentration	Percent Recovery	QC Limits (**) (Mandatory)	
				Upper Limit	Lower Limit
Blank Standard 1					
Blank Standard 2					
Blank Standard 3					
Blank Outside Source					

## DUPLICATES

QC Duplicate Sample ID	Sample Result <1>	Sample Result <2>	Relative Percent Difference	CC LIMITS (**) (Advisory)
				Relative Percent Difference Max.
5226-1B	22	21	4.7	23.0
5227-7A	9	9	0	1

Percent Difference (RPD) Calculation:

$$RPD = \frac{<1> - <2>}{(<1> + <2>) \times 0.5} \times 100$$

(\*\*) = Source: SPL Houston Historical Data  
\* = Indicates Value Outside CA/QC Range

By: [Signature] Date: 5/11/95

Approved By: [Signature] Date: 5/11/95  
[Signature] Date: 5/11/95  
Idelis Williams, QC Officer



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HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-01

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 07/17/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 15:40:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	11	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	13	2	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



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San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 07/17/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 15:40:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95			
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	2.8	0.4	mg/Kg	

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
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ATTN: Kathryn Pritchett

07/17/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 15:40:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



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HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-01

Operational Tech

SAMPLE ID: 026-001BH 2-2.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	90	70	121
Toluene-d8	50 ug/Kg	100	84	138
4-Bromofluorobenzene	50 ug/Kg	88	59	113

ANALYZED BY: HLW

DATE/TIME: 05/08/95 18:34:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



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8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-01

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

07/17/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 15:40:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	1600	ug/Kg
Benzo(g,h,i)Perylene	ND	330	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl) Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl) Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	ND	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



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HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-01

Operational Tech

SAMPLE ID: 026-001BH 2-2.5

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



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HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-01

Operational Tech

SAMPLE ID: 026-001BH 2-2.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	79	23	120
2-Fluorobiphenyl	1600 ug/Kg	85	30	115
Terphenyl-d14	1600 ug/Kg	101	18	137
Phenol-d5	2500 ug/Kg	58	24	113
2-Fluorophenol	2500 ug/Kg	47	25	121
2,4,6-Tribromophenol	2500 ug/Kg	108	19	122

ANALYZED BY: LH

DATE/TIME: 05/16/95 20:22:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950508.b/k128s13.d

Lab Smp Id: 9505164-01A-8240S/1X

Inj Date : 08-MAY-1995 18:34

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-01A-8240S/1X

Misc Info : K128S1/K128B02/K127CS2

Comment :

Method : /chem/k.i/k950508.b/kvoclp.s.m

Meth Date : 12-May-1995 08:16 hillery Quant Type: ISTD

Cal Date : 08-MAY-1995 11:24 Cal File: k128cs2.d

Als bottle: 26

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Compound Sublist: normal.sub

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
*****	----	-----				-----	-----	-----
* 20 Bromochloromethane	128.00	2.120	2.120	(1.000)	89184	250		
* 31 1,4-Difluorobenzene	114.00	2.802	2.802	(1.000)	514338	250		
* 51 Chlorobenzene-d5	117.00	6.772	6.772	(1.000)	379903	250		
\$ 23 1,2-Dichloroethane-d4	102.00	2.378	2.378	(1.121)	36830	220	45	
\$ 40 Toluene-d8	98.00	4.545	4.545	(0.671)	580602	250	50	
\$ 61 Bromofluorobenzene	95.00	8.878	8.878	(1.311)	185120	220	44	

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k128s13.d  
Lab Smp Id: 9505164-01A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Misc Info: K128S1/K128B02/K127CS2

Calibration Date: 05/08/95  
Calibration Time: 1124

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	88679	44340	177358	89184	0.57
31 1,4-Difluorobenzene	553116	276558	1106232	514338	-7.01
51 Chlorobenzene-d5	397197	198598	794394	379903	-4.35

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.01
31 1,4-Difluorobenzene	2.80	2.30	3.30	2.80	-0.01
51 Chlorobenzene-d5	6.77	6.27	7.27	6.77	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950508.b/k128s13.d  
Date : 08-MAY-1995 18:34

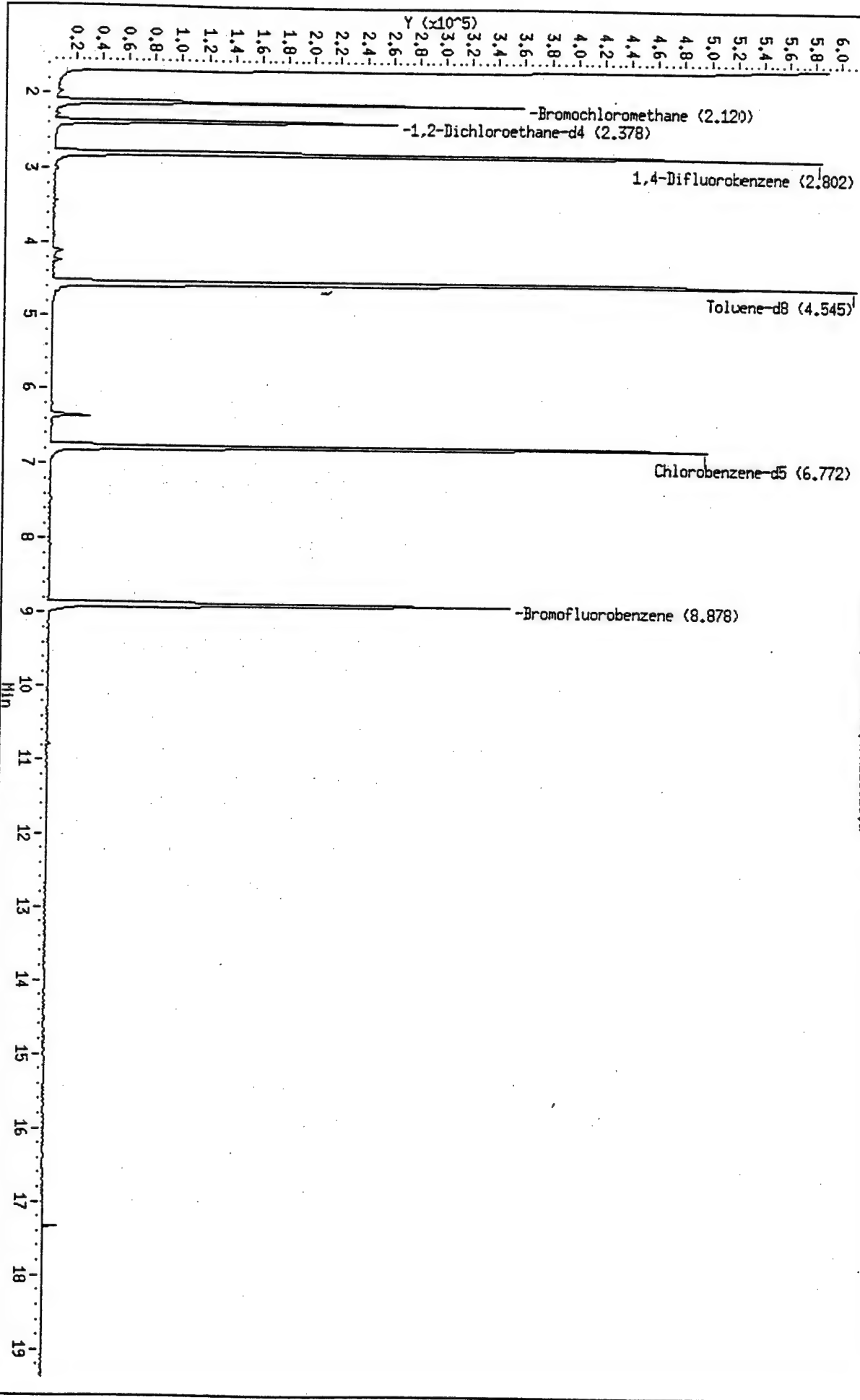
Client ID:  
Sample Info: 9505164-01A-82405/1X

Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1

Operator: HLM  
Column diameter: 0.25

/chem/k.1/k950508.b/k128s13.d



SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136s14.d

Lab Smp Id:

Inj Date : 16-MAY-95 20:22

Operator : LH

Inst ID: h.i

Smp Info : 9505164-01B-8270S/1X

Misc Info : E132S1/H132B02/H136IC1

Comment :

Method : /chem/h.i/h950516.b/hclps.m

Meth Date : 16-May-1995 16:57 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 18

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
*****	----	--	-----	-----	-----	-----	-----
* 11 1,4-Dichlorobenzene-d4	152.00	4.444	4.454	(1.000)	132394	40	
* 32 Naphthalene-d8	136.00	5.629	5.651	(1.000)	455088	40	
* 48 Acenaphthene-d10	164.00	7.407	7.417	(1.000)	210680	40	
* 65 Phenanthrene-d10	188.00	8.900	8.922	(1.000)	255441	40	
* 76 Chrysene-d12	240.00	11.756	11.777	(1.000)	130404	40	
* 83 Perylene-d12	264.00	13.972	13.993	(1.000)	71532	40	
\$ 23 Nitrobenzene-d5	82.00	4.954	4.964	(0.880)	283474	76	1300
\$ 41 2-Fluorobiphenyl	172.00	6.720	6.729	(0.907)	564038	81	1400
\$ 72 Terphenyl-d14	244.00	10.535	10.545	(0.896)	350916	97	1600
\$ 4 Phenol-d5	99.00	4.160	4.158	(0.936)	418416	87	1400
\$ 3 2-Fluorophenol	112.00	3.449	3.423	(0.776)	316023	70	1200
\$ 61 2,4,6-Tribromophenol	329.70	8.225	8.234	(0.924)	166614	160	2700

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136s14.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclps.m  
Misc Info: E132S1/H132B02/H136IC1

Calibration Date: 05/16/95  
Calibration Time: 1152

Level: LOW  
Sample Type: SOIL

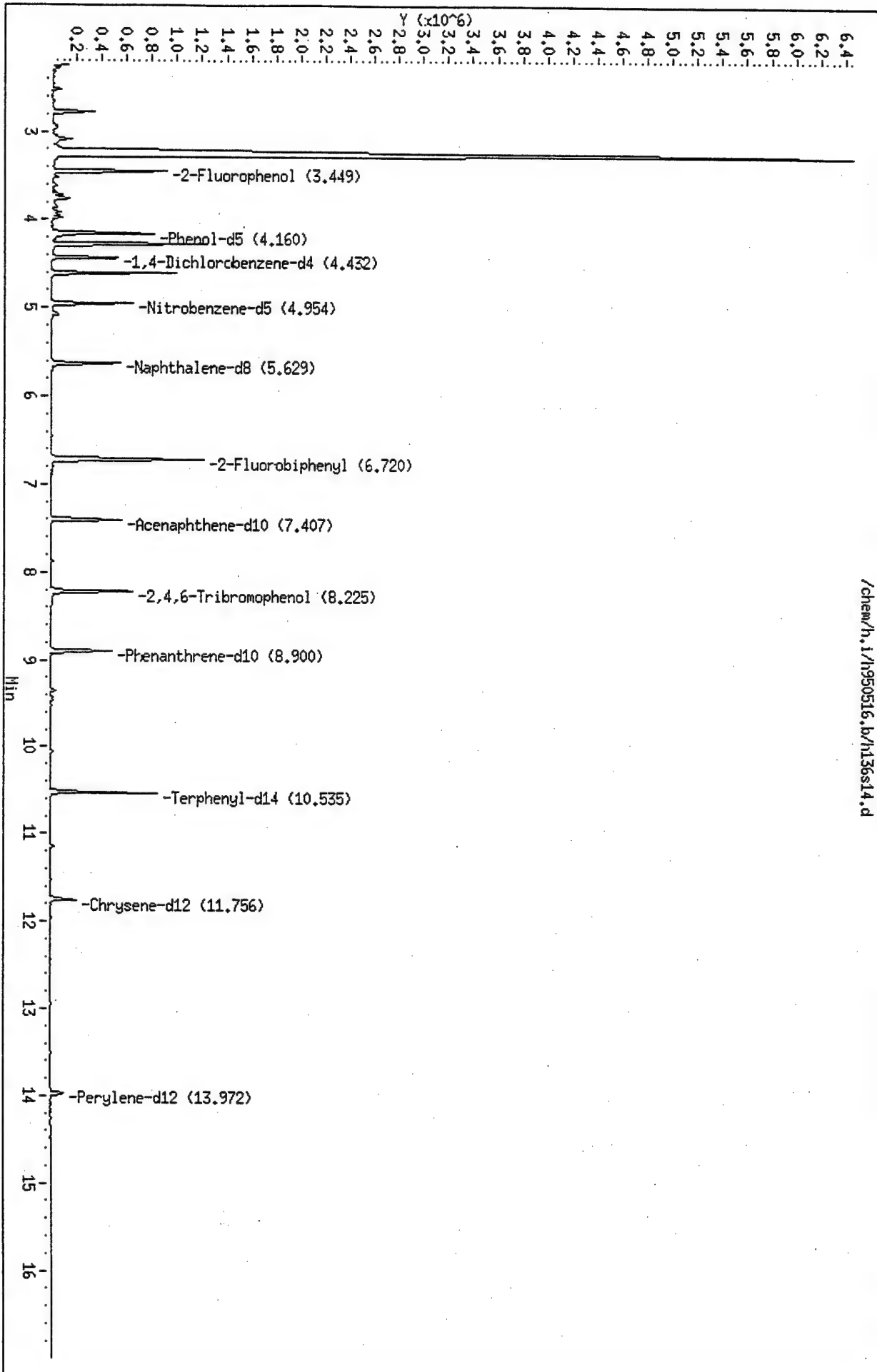
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	132394	28.31
32 Naphthalene-d8	348029	174014	696058	455088	30.76
48 Acenaphthene-d10	171424	85712	342848	210680	22.90
65 Phenanthrene-d10	222794	111397	445588	255441	14.65
76 Chrysene-d12	137788	68894	275576	130404	-5.36
83 Perylene-d12	83290	41645	166580	71532	-14.12

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.44	-0.22
32 Naphthalene-d8	5.65	5.15	6.15	5.63	-0.38
48 Acenaphthene-d10	7.42	6.92	7.92	7.41	-0.13
65 Phenanthrene-d10	8.92	8.42	9.42	8.90	-0.24
76 Chrysene-d12	11.78	11.28	12.28	11.76	-0.18
83 Perylene-d12	13.99	13.49	14.49	13.97	-0.15

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h136s14.d  
Date: 16-MAY-95 20:22  
Client ID:  
Sample Info: 9505164-01B-82705/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-02

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 15:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	12	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	10	1	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



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Operational Tech  
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San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 15:35:00  
DATE RECEIVED: 05/04/95

#### ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	2.4	0.4	mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





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8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-02

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 15:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
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PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-02

Operational Tech

SAMPLE ID: 026-001BH 9.5-10

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	92	70	121
Toluene-d8	50 ug/Kg	100	84	138
4-Bromofluorobenzene	50 ug/Kg	92	59	113

ANALYZED BY: HLW

DATE/TIME: 05/08/95 19:05:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-02

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 15:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	330	ug/Kg
Benzo(g,h,i)Perylene	ND	1600	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	ND	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
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PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-02

Operational Tech

SAMPLE ID: 026-001BH 9.5-10

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-02

Operational Tech

SAMPLE ID: 026-001BH 9.5-10

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	85	23	120
2-Fluorobiphenyl	1600 ug/Kg	83	30	115
Terphenyl-d14	1600 ug/Kg	84	18	137
Phenol-d5	2500 ug/Kg	61	24	113
2-Fluorophenol	2500 ug/Kg	51	25	121
2,4,6-Tribromophenol	2500 ug/Kg	98	19	122

ANALYZED BY: LH

DATE/TIME: 05/15/95 20:45:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Data File: /chem/k.i/k950508.b/k128s14.d  
Report Date: 12-May-1995 08:23

Page 1

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950508.b/k128s14.d

Lab Smp Id: 9505164-02A-8240S/1X

Inj Date : 08-MAY-1995 19:05

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-02A-8240S/1X

Misc Info : K128S1/K128B02/K127CS2

Comment :

Method : /chem/k.i/k950508.b/kvoclp.s.m

Meth Date : 12-May-1995 08:16 hillery

Quant Type: ISTD

Cal Date : 08-MAY-1995 11:24

Cal File: k128cs2.d

Als bottle: 27

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.120	2.120	(1.000)	85050	250	
* 31 1,4-Difluorobenzene	114.00	2.802	2.802	(1.000)	490413	250	
* 51 Chlorobenzene-d5	117.00	6.772	6.772	(1.000)	358355	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.378	2.378	(1.121)	36072	230	46
\$ 40 Toluene-d8	98.00	4.545	4.545	(0.671)	546441	250	50
\$ 61 Bromofluorobenzene	95.00	8.878	8.878	(1.311)	182658	230	46

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k128s14.d  
Lab Smp Id: 9505164-02A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Misc Info: K128S1/K128B02/K127CS2

Calibration Date: 05/08/95  
Calibration Time: 1124

Level: LOW  
Sample Type: SOIL

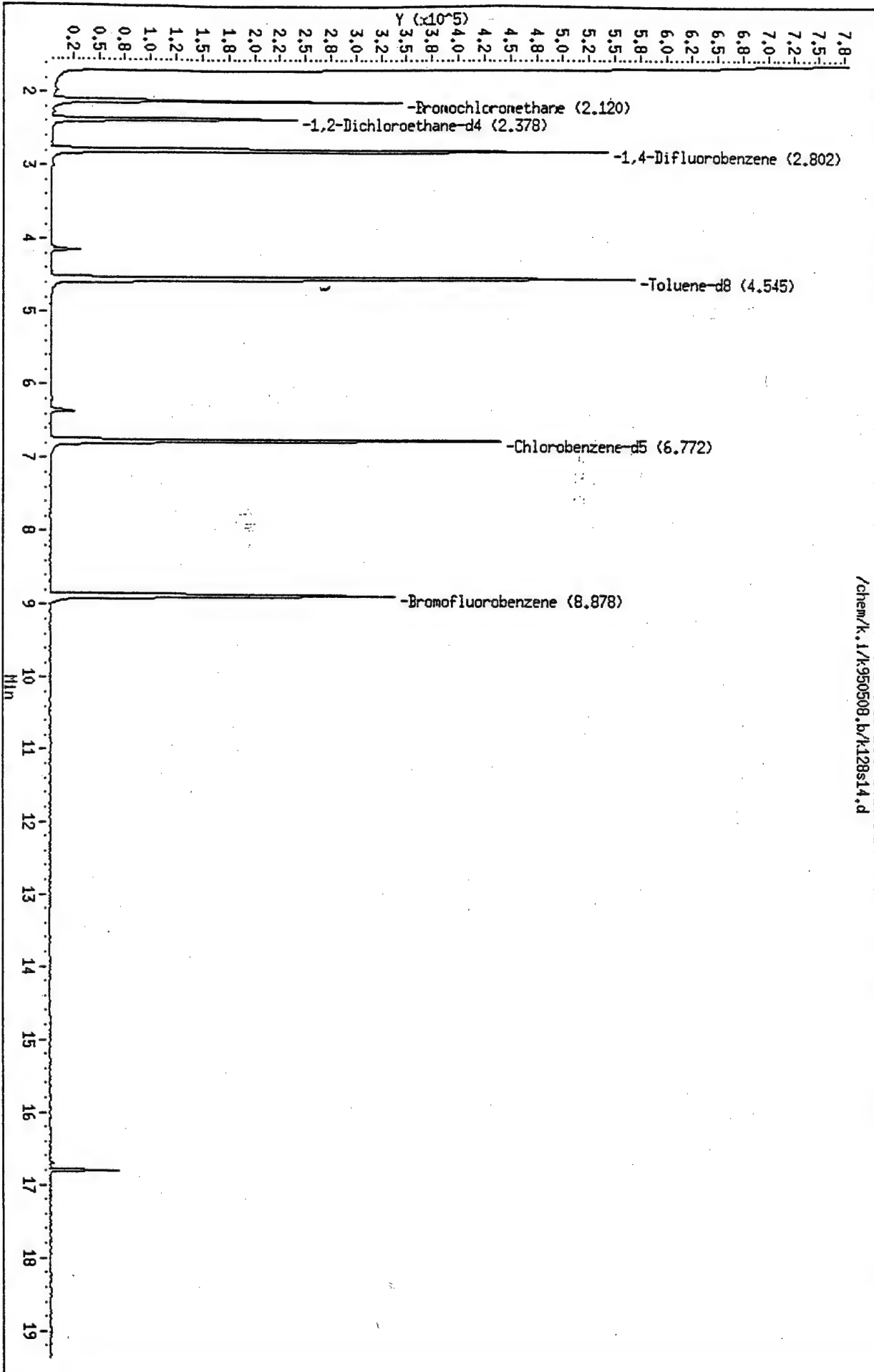
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	88679	44340	177358	85050	-4.09
31 1,4-Difluorobenzene	553116	276558	1106232	490413	-11.34
51 Chlorobenzene-d5	397197	198598	794394	358355	-9.78

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.00
31 1,4-Difluorobenzene	2.80	2.30	3.30	2.80	0.00
51 Chlorobenzene-d5	6.77	6.27	7.27	6.77	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950508.b/k128s14.d  
 Date: 08-10-1995 19:05  
 Client ID:  
 Sample Info: 9505164-02A-82405/1X  
 Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1  
 Operator: HLM  
 Column diameter: 0.25





SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s02.d

Lab Smp Id:

Inj Date : 15-MAY-1995 20:45

Operator : LH

Inst ID: h.i

Smp Info : 9505164-02B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 11

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						( ng)	(ug/Kg)
=====	----	--	-----	-----	-----	-----	-----
* 11 1,4-Dichlorobenzene-d4	152.00	4.469	4.477	(1.000)	180275	40	
* 32 Naphthalene-d8	136.00	5.665	5.674	(1.000)	648739	40	
* 48 Acenaphthene-d10	164.00	7.443	7.452	(1.000)	301355	40	
* 65 Phenanthrene-d10	188.00	8.936	8.945	(1.000)	415910	40	
* 76 Chrysene-d12	240.00	11.804	11.813	(1.000)	282384	40	
* 83 Perylene-d12	264.00	14.044	14.053	(1.000)	180897	40	
\$ 23 Nitrobenzene-d5	82.00	4.990	4.999	(0.881)	419625	82	1400
\$ 41 2-Fluorobiphenyl	172.00	6.756	6.765	(0.908)	785905	80	1300
\$ 72 Terphenyl-d14	244.00	10.583	10.580	(0.897)	617218	81	1400
\$ 4 Phenol-d5	99.00	4.184	4.193	(0.936)	631272	91	1500
\$ 3 2-Fluorophenol	112.00	3.485	3.458	(0.780)	484311	77	1300
\$ 61 2,4,6-Tribromophenol	329.70	8.261	8.258	(0.924)	208924	150	2400

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s02.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	180275	46.54
32 Naphthalene-d8	418440	209220	836880	648739	55.04
48 Acenaphthene-d10	198324	99162	396648	301355	51.95
65 Phenanthrene-d10	270386	135193	540772	415910	53.82
76 Chrysene-d12	175926	87963	351852	282384	60.51
83 Perylene-d12	106536	53268	213072	180897	69.80

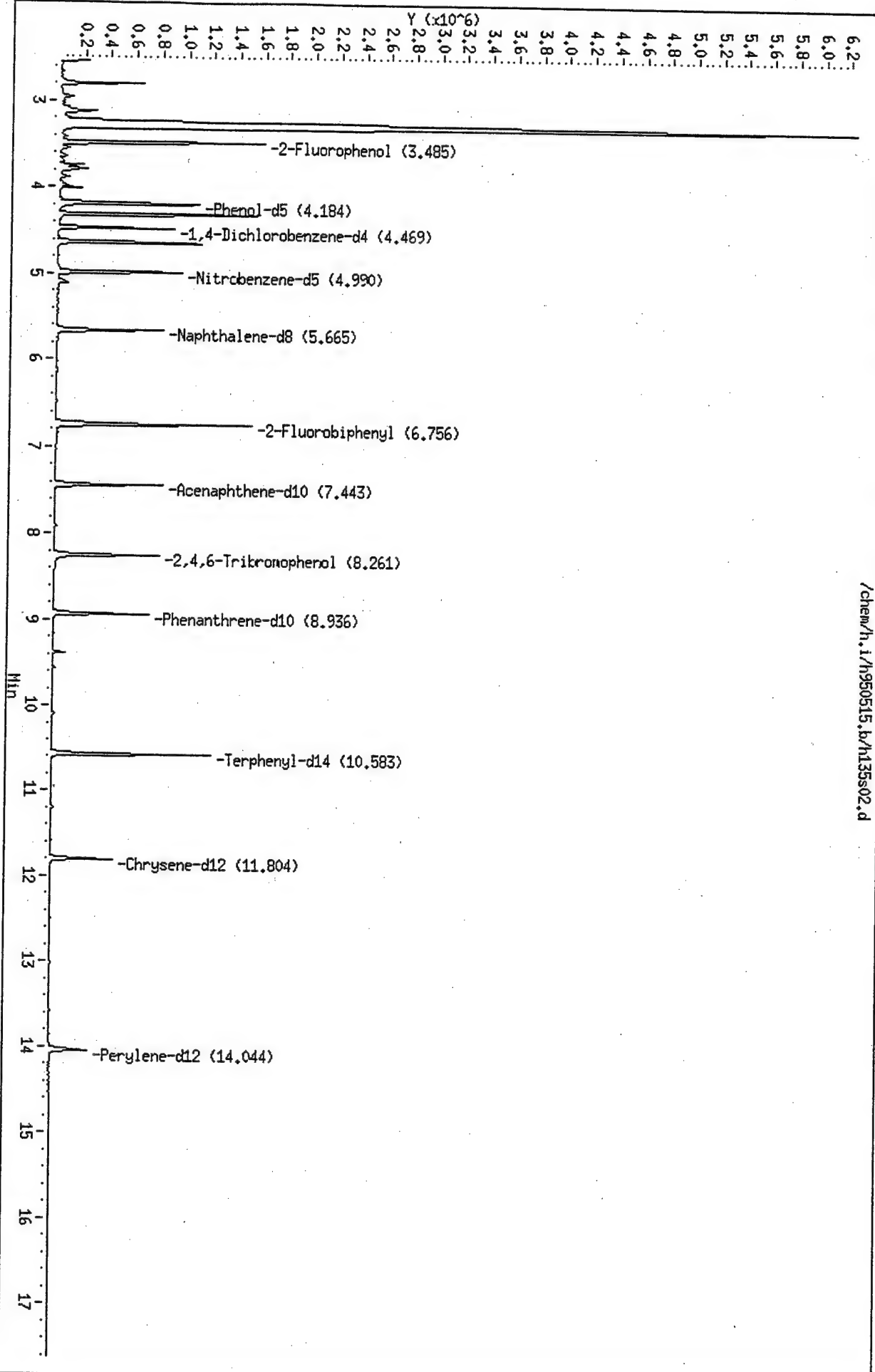
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.20
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.16
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.12
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.10
76 Chrysene-d12	11.81	11.31	12.31	11.80	-0.08
83 Perylene-d12	14.05	13.55	14.55	14.04	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s02.d  
Date: 15-MAY-1995 20:45

Client ID:  
Sample Info: 9505164-02B-82705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-03

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-004BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:32:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	10	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	9	1	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



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8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
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Certificate of Analysis No. H9-9505164-03

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-004BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:32:00  
DATE RECEIVED: 05/04/95

PARAMETER	ANALYTICAL DATA		DETECTION LIMIT	UNITS
	RESULTS			
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95			
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	5.3	0.4		mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
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PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-03

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-004BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:32:00  
DATE RECEIVED: 05/04/95

#### ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-03

Operational Tech

SAMPLE ID: 026-004BH 2-2.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	90	70	121
Toluene-d8	50 ug/Kg	100	84	138
4-Bromofluorobenzene	50 ug/Kg	94	59	113

ANALYZED BY: HLW

DATE/TIME: 05/08/95 19:32:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505164-03

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-004BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:32:00  
DATE RECEIVED: 05/04/95

# ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	1600	ug/Kg
Benzo(g,h,i)Perylene	ND	330	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	ND	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)





HOUSTON LABORATORY  
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Certificate of Analysis No. H9-9505164-03

Operational Tech

SAMPLE ID: 026-004BH 2-2.5

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-03

Operational Tech

SAMPLE ID: 026-004BH 2-2.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	86	23	120
2-Fluorobiphenyl	1600 ug/Kg	83	30	115
Terphenyl-d14	1600 ug/Kg	86	18	137
Phenol-d5	2500 ug/Kg	60	24	113
2-Fluorophenol	2500 ug/Kg	51	25	121
2,4,6-Tribromophenol	2500 ug/Kg	97	19	122

ANALYZED BY: LH

DATE/TIME: 05/15/95 21:10:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/k.i/k950508.b/k128s15.d  
Report Date: 12-May-1995 08:23

Page 1

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950508.b/k128s15.d

Lab Smp Id: 9505164-03A-8240S/1X

Inj Date : 08-MAY-1995 19:32

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-03A-8240S/1X

Misc Info : K128S1/K128B02/K127CS2

Comment :

Method : /chem/k.i/k950508.b/kvoclp.s.m

Meth Date : 12-May-1995 08:16 hillery

Quant Type: ISTD

Cal Date : 08-MAY-1995 11:24

Cal File: k128cs2.d

Als bottle: 28

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.120	2.120	(1.000)	90603	250		
* 31 1,4-Difluorobenzene	114.00	2.802	2.802	(1.000)	529149	250		
* 51 Chlorobenzene-d5	117.00	6.772	6.772	(1.000)	394781	250		
\$ 23 1,2-Dichloroethane-d4	102.00	2.378	2.378	(1.121)	37775	230		45
\$ 40 Toluene-d8	98.00	4.545	4.545	(0.671)	600233	250		50
\$ 61 Bromofluorobenzene	95.00	8.878	8.878	(1.311)	205412	240		47

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k128s15.d  
Lab Smp Id: 9505164-03A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Misc Info: K128S1/K128B02/K127CS2

Calibration Date: 05/08/95  
Calibration Time: 1124

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	88679	44340	177358	90603	2.17
31 1,4-Difluorobenzene	553116	276558	1106232	529149	-4.33
51 Chlorobenzene-d5	397197	198598	794394	394781	-0.61

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.00
31 1,4-Difluorobenzene	2.80	2.30	3.30	2.80	0.00
51 Chlorobenzene-d5	6.77	6.27	7.27	6.77	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950508.b/k128s15.d  
Date : 08-MAY-1995 19:32

Client ID:

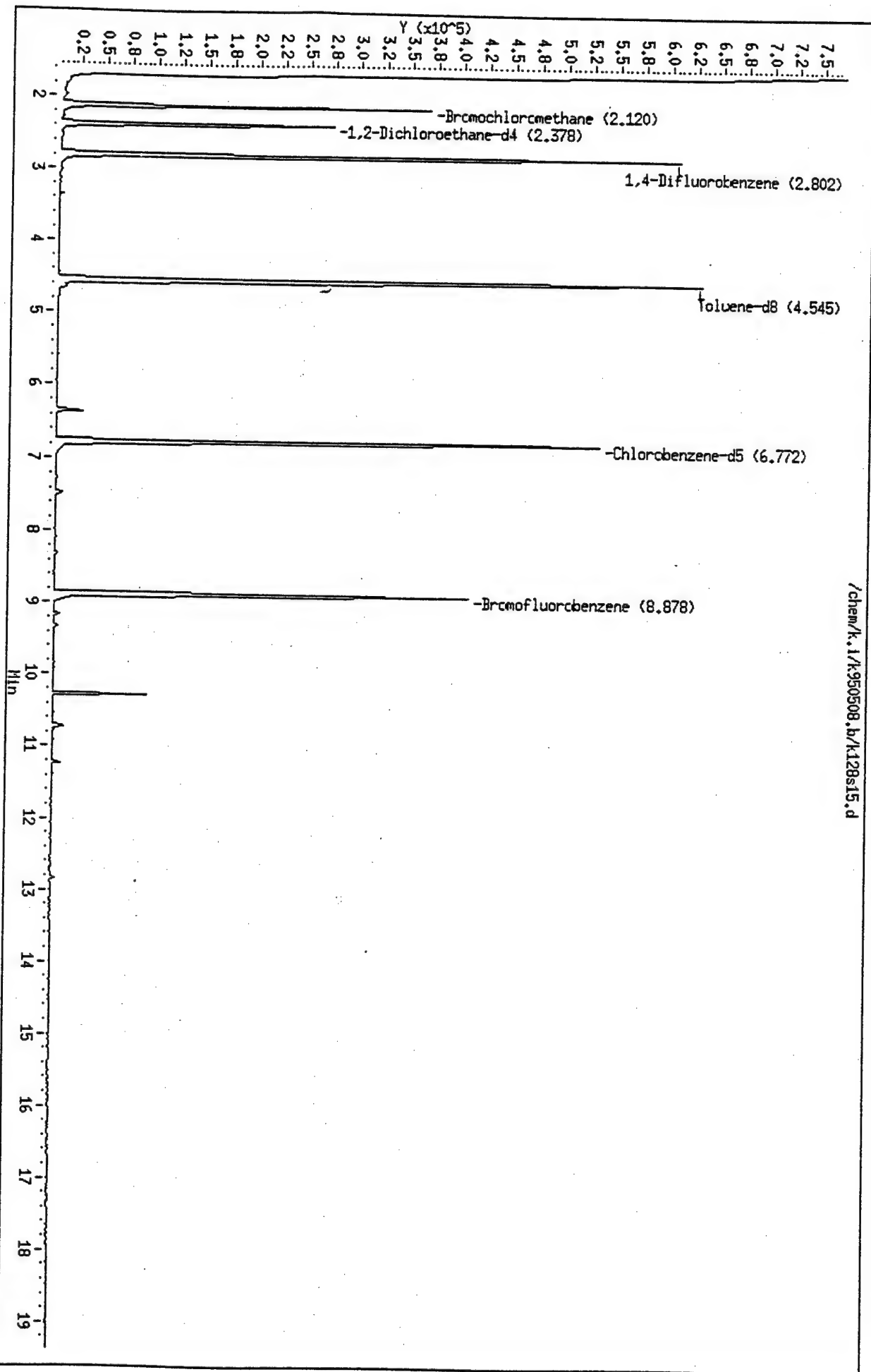
Sample Info: 9505164-03R-8240S/1X

Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1

Operator: HLM

Column diameter: 0.25



Data File: /chem/h.i/h950515.b/h135s03.d  
Report Date: 16-May-1995 11:42

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s03.d

Lab Smp Id:

Inj Date : 15-MAY-95 21:10

Operator : LH

Inst ID: h.i

Smp Info : 9505164-03B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 12

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
* 11 1,4-Dichlorobenzene-d4	152.00	4.471	4.477	(1.000)	174224	40	
* 32 Naphthalene-d8	136.00	5.668	5.674	(1.000)	614099	40	
* 48 Acenaphthene-d10	164.00	7.446	7.452	(1.000)	292631	40	
* 65 Phenanthrene-d10	188.00	8.939	8.945	(1.000)	394841	40	
* 76 Chrysene-d12	240.00	11.807	11.813	(1.000)	235769	40	
* 83 Perylene-d12	264.00	14.046	14.053	(1.000)	151469	40	
\$ 23 Nitrobenzene-d5	82.00	4.993	4.999	(0.881)	404546	83	1400
\$ 41 2-Fluorobiphenyl	172.00	6.759	6.765	(0.908)	766560	80	1300
\$ 72 Terphenyl-d14	244.00	10.574	10.580	(0.896)	527493	83	1400
\$ 4 Phenol-d5	99.00	4.187	4.193	(0.936)	609347	91	1500
\$ 3 2-Fluorophenol	112.00	3.476	3.458	(0.777)	466367	76	1300
\$ 61 2,4,6-Tribromophenol	329.70	8.264	8.258	(0.924)	196579	140	2400

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s03.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526  
Level: LOW  
Sample Type: SOIL

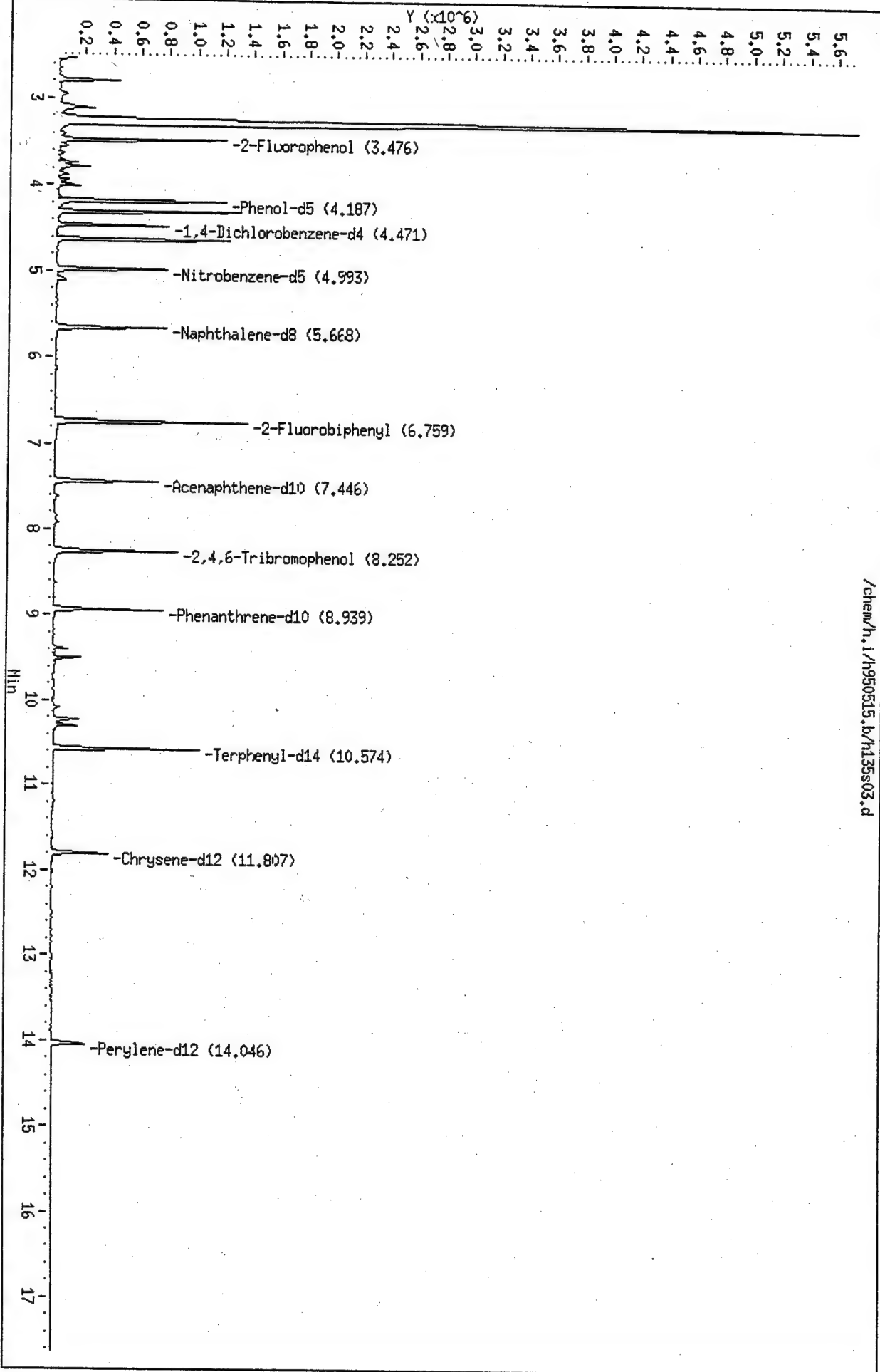
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	174224	41.62
32 Naphthalene-d8	418440	209220	836880	614099	46.76
48 Acenaphthene-d10	198324	99162	396648	292631	47.55
65 Phenanthrene-d10	270386	135193	540772	394841	46.03
76 Chrysene-d12	175926	87963	351852	235769	34.02
83 Perylene-d12	106536	53268	213072	151469	42.18

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.13
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.11
48 Acenaphthene-d10	7.45	6.95	7.95	7.45	-0.08
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.07
76 Chrysene-d12	11.81	11.31	12.31	11.81	-0.05
83 Perylene-d12	14.05	13.55	14.55	14.05	-0.04

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s03.d  
Date : 15-MAY-95 21:10  
Client ID:  
Sample Info: 9505164-03B-82705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25







HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-04

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-004BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:47:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	12	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	7	2	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-04

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-004BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:47:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	2.5	0.4	mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-04

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-004BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:47:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA				
PARAMETER	RESULTS	PQL*	UNITS	
Acetone	ND	100	ug/Kg	
Benzene	ND	5	ug/Kg	
Bromodichloromethane	ND	5	ug/Kg	
Bromoform	ND	5	ug/Kg	
Bromomethane	ND	10	ug/Kg	
2-Butanone	ND	20	ug/Kg	
Carbon Disulfide	ND	5	ug/Kg	
Carbon Tetrachloride	ND	5	ug/Kg	
Chlorobenzene	ND	5	ug/Kg	
Chloroethane	ND	10	ug/Kg	
2-Chloroethylvinylether	ND	10	ug/Kg	
Chloroform	ND	5	ug/Kg	
Chloromethane	ND	10	ug/Kg	
Dibromochloromethane	ND	5	ug/Kg	
1,1-Dichloroethane	ND	5	ug/Kg	
1,1-Dichloroethene	ND	5	ug/Kg	
1,2-Dichloroethane	ND	5	ug/Kg	
total-1,2-Dichloroethene	ND	5	ug/Kg	
1,2-Dichloropropane	ND	5	ug/Kg	
cis-1,3-Dichloropropene	ND	5	ug/Kg	
trans-1,3-Dichloropropene	ND	5	ug/Kg	
Ethylbenzene	ND	5	ug/Kg	
2-Hexanone	ND	10	ug/Kg	
Methylene Chloride	ND	5	ug/Kg	
4-Methyl-2-Pentanone	ND	10	ug/Kg	
Styrene	ND	5	ug/Kg	
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg	
Tetrachloroethene	ND	5	ug/Kg	
Toluene	ND	5	ug/Kg	
1,1,1-Trichloroethane	ND	5	ug/Kg	
1,1,2-Trichloroethane	ND	5	ug/Kg	
Trichloroethene	ND	5	ug/Kg	
Trichlorofluoromethane	ND	5	ug/Kg	
Vinyl Acetate	ND	10	ug/Kg	
Vinyl Chloride	ND	10	ug/Kg	
Xylenes (total)	ND	5	ug/Kg	

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-04

Operational Tech

SAMPLE ID: 026-004BH 9.5-10

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	90	70	121
Toluene-d8	50 ug/Kg	106	84	138
4-Bromofluorobenzene	50 ug/Kg	100	59	113

ANALYZED BY: HLW

DATE/TIME: 05/08/95 19:59:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-04

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-004BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:47:00  
DATE RECEIVED: 05/04/95

#### ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	1600	ug/Kg
Benzo(g,h,i)Perylene	ND	330	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	ND	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-04

Operational Tech

SAMPLE ID: 026-004BH 9.5-10

ANALYTICAL DATA (continued)			
PARAMETER	RESULTS	PQL*	UNITS
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno (1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-04

Operational Tech

SAMPLE ID: 026-004BH 9.5-10

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	84	23	120
2-Fluorobiphenyl	1600 ug/Kg	82	30	115
Terphenyl-d14	1600 ug/Kg	83	18	137
Phenol-d5	2500 ug/Kg	63	24	113
2-Fluorophenol	2500 ug/Kg	54	25	121
2,4,6-Tribromophenol	2500 ug/Kg	103	19	122

ANALYZED BY: LH

DATE/TIME: 05/15/95 21:34:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Data File: /chem/k.i/k950508.b/k128s16.d  
Report Date: 12-May-1995 08:23

Page 1

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950508.b/k128s16.d

Lab Smp Id: 9505164-04A-8240S/1X

Inj Date : 08-MAY-1995 19:59

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-04A-8240S/1X

Misc Info : K128S1/K128B02/K127CS2

Comment :

Method : /chem/k.i/k950508.b/kvoclp.s.m

Meth Date : 12-May-1995 08:16 hillery Quant Type: ISTD

Cal Date : 08-MAY-1995 11:24 Cal File: k128cs2.d

Als bottle: 29

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.122	2.120	(1.000)	89707	250	
* 31 1,4-Difluorobenzene	114.00	2.804	2.802	(1.000)	527571	250	
* 51 Chlorobenzene-d5	117.00	6.774	6.772	(1.000)	368507	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.380	2.378	(1.121)	37434	230	45
\$ 40 Toluene-d8	98.00	4.546	4.545	(0.671)	591336	260	53
\$ 61 Bromofluorobenzene	95.00	8.880	8.878	(1.311)	201082	250	50



SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k128s16.d  
Lab Smp Id: 9505164-04A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950508.b/kvoc1ps.m  
Misc Info: K128S1/K128B02/K127CS2

Calibration Date: 05/08/95  
Calibration Time: 1124

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	88679	44340	177358	89707	1.16
31 1,4-Difluorobenzene	553116	276558	1106232	527571	-4.62
51 Chlorobenzene-d5	397197	198598	794394	368507	-7.22

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.08
31 1,4-Difluorobenzene	2.80	2.30	3.30	2.80	0.06
51 Chlorobenzene-d5	6.77	6.27	7.27	6.77	0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950508.b/k128s16.d

Date : 08-MAY-1995 19:59

Client ID:

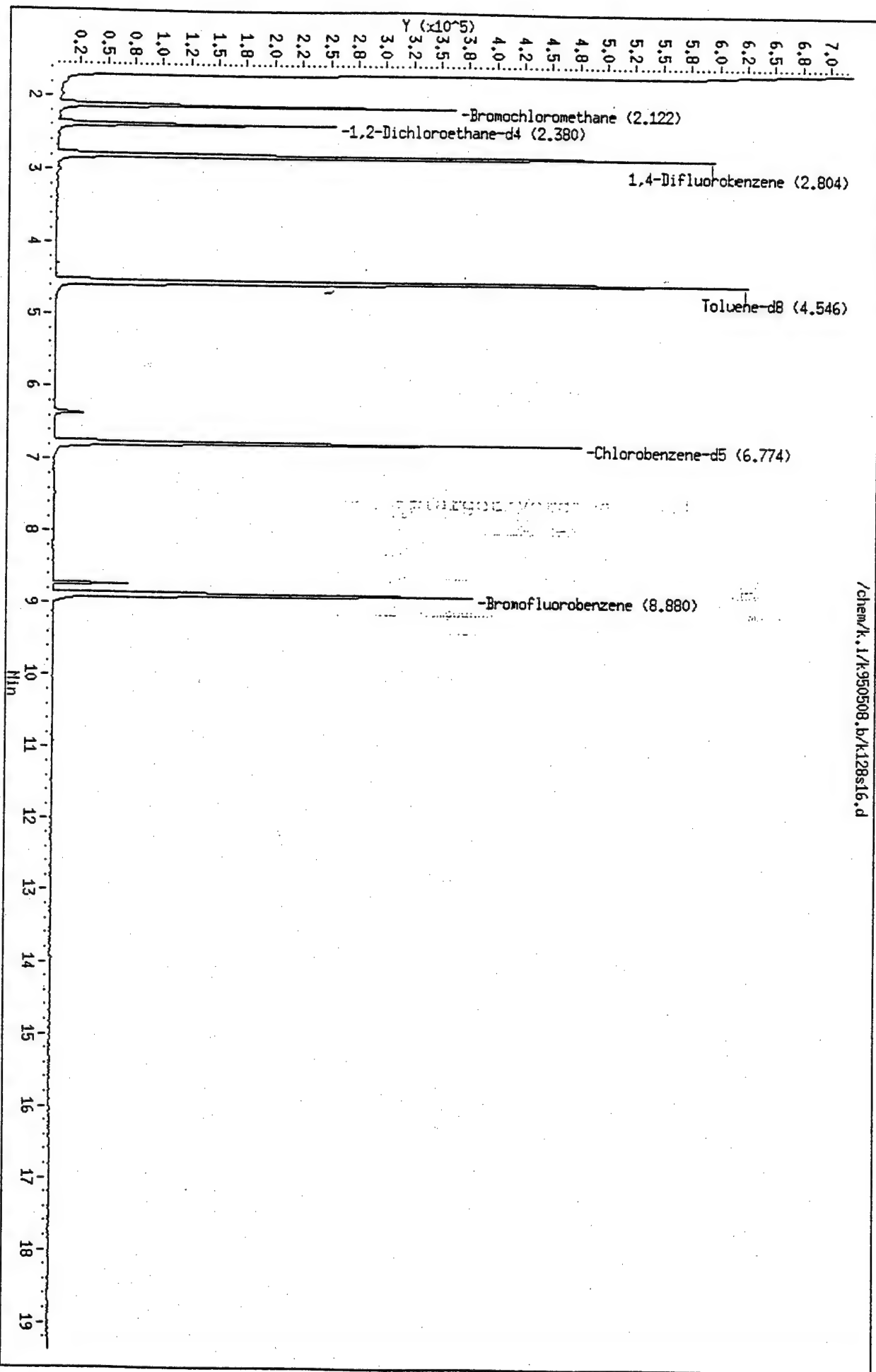
Sample Info: 9505164-04A-82405/1X

Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1

Operator: HLM

Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s04.d

Lab Smp Id:

Inj Date : 15-MAY-1995 21:34

Operator : LH

Inst ID: h.i

Smp Info : 9505164-04B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 13

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
* 11 1,4-Dichlorobenzene-d4	152.00	4.469	4.477	(1.000)	153684	40	
* 32 Naphthalene-d8	136.00	5.665	5.674	(1.000)	573171	40	
* 48 Acenaphthene-d10	164.00	7.443	7.452	(1.000)	275136	40	
* 65 Phenanthrene-d10	188.00	8.936	8.945	(1.000)	397087	40	
* 76 Chrysene-d12	240.00	11.804	11.813	(1.000)	279512	40	
* 83 Perylene-d12	264.00	14.044	14.053	(1.000)	171637	40	
\$ 23 Nitrobenzene-d5	82.00	4.990	4.999	(0.881)	368286	81	1300
\$ 41 2-Fluorobiphenyl	172.00	6.756	6.765	(0.908)	711308	79	1300
\$ 72 Terphenyl-d14	244.00	10.583	10.580	(0.897)	603278	80	1300
\$ 4 Phenol-d5	99.00	4.184	4.193	(0.936)	556468	94	1600
\$ 3 2-Fluorophenol	112.00	3.485	3.458	(0.780)	432086	80	1300
\$ 61 2,4,6-Tribromophenol	329.70	8.261	8.258	(0.924)	211033	150	2600

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s04.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	153684	24.92
32 Naphthalene-d8	418440	209220	836880	573171	36.98
48 Acenaphthene-d10	198324	99162	396648	275136	38.73
65 Phenanthrene-d10	270386	135193	540772	397087	46.86
76 Chrysene-d12	175926	87963	351852	279512	58.88
83 Perylene-d12	106536	53268	213072	171637	61.11

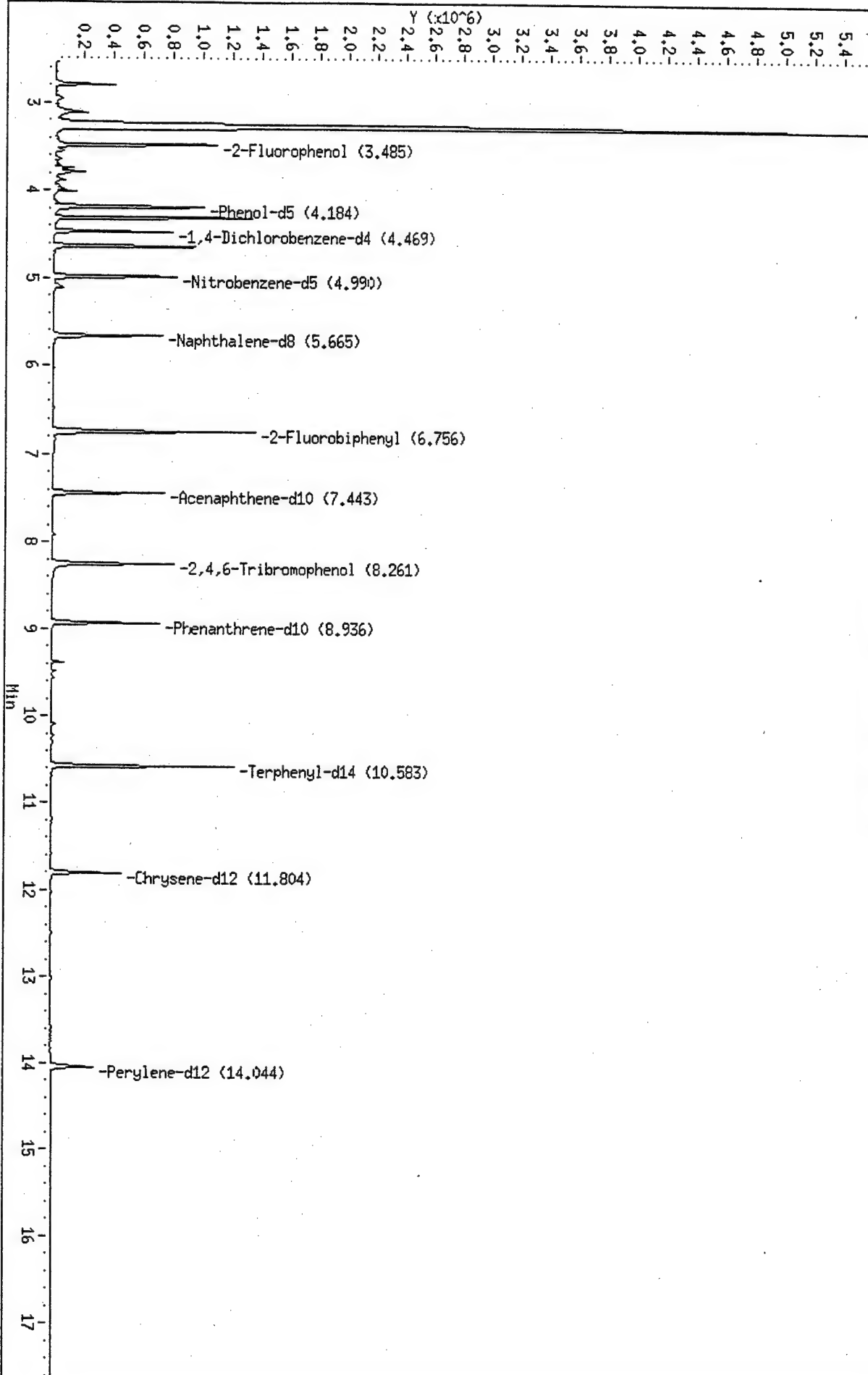
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.20
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.16
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.12
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.10
76 Chrysene-d12	11.81	11.31	12.31	11.80	-0.08
83 Perylene-d12	14.05	13.55	14.55	14.04	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s04.d  
Date : 15-MAY-1995 21:34  
Client ID:  
Sample Info: 9505164-04B-82705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950515.b/h135s04.d





Certificate of Analysis No. H9-9505164-05

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH 1.5-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:45:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	5	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	7	1	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505164-05

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH 1.5-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:45:00  
DATE RECEIVED: 05/04/95

PARAMETER	ANALYTICAL DATA			UNITS
	RESULTS	DETECTION LIMIT		
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95			
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	4.6	0.4		mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-05

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH 1.5-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:45:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-05

Operational Tech

SAMPLE ID: 026-005BH 1.5-2.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	88	70	121
Toluene-d8	50 ug/Kg	104	84	138
4-Bromofluorobenzene	50 ug/Kg	96	59	113

ANALYZED BY: HLW

DATE/TIME: 05/08/95 20:25:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-05

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH 1.5-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:45:00  
DATE RECEIVED: 05/04/95

# ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	1600	ug/Kg
Benzo(g,h,i)Perylene	ND	330	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	ND	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-05

Operational Tech

SAMPLE ID: 026-005BH 1.5-2.5

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-05

Operational Tech

SAMPLE ID: 026-005BH 1.5-2.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	87	23	120
2-Fluorobiphenyl	1600 ug/Kg	83	30	115
Terphenyl-d14	1600 ug/Kg	87	18	137
Phenol-d5	2500 ug/Kg	62	24	113
2-Fluorophenol	2500 ug/Kg	53	25	121
2,4,6-Tribromophenol	2500 ug/Kg	101	19	122

ANALYZED BY: LH

DATE/TIME: 05/15/95 21:59:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/k.i/k950508.b/k128s17.d  
Report Date: 12-May-1995 08:23

Page 1

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950508.b/k128s17.d

Lab Smp Id: 9505164-05A-8240S/1X

Inj Date : 08-MAY-1995 20:25

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-05A-8240S/1X

Misc Info : K128S1/K128B02/K127CS2

Comment :

Method : /chem/k.i/k950508.b/kvoclp.s.m

Meth Date : 12-May-1995 08:16 hillery Quant Type: ISTD

Cal Date : 08-MAY-1995 11:24 Cal File: k128cs2.d

Als bottle: 30

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Compound Sublist: normal.sub

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.122	2.120	(1.000)	88864	250		
* 31 1,4-Difluorobenzene	114.00	2.804	2.802	(1.000)	521793	250		
* 51 Chlorobenzene-d5	117.00	6.774	6.772	(1.000)	367512	250		
\$ 23 1,2-Dichloroethane-d4	102.00	2.379	2.378	(1.121)	36206	220	44	
\$ 40 Toluene-d8	98.00	4.546	4.545	(0.671)	581719	260	52	
\$ 61 Bromofluorobenzene	95.00	8.880	8.878	(1.311)	192565	240	48	

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k128s17.d  
Lab Smp Id: 9505164-05A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Misc Info: K128S1/K128B02/K127CS2

Calibration Date: 05/08/95  
Calibration Time: 1124

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	88679	44340	177358	88864	0.21
31 1,4-Difluorobenzene	553116	276558	1106232	521793	5.66
51 Chlorobenzene-d5	397197	198598	794394	367512	-7.47

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.07
31 1,4-Difluorobenzene	2.80	2.30	3.30	2.80	0.06
51 Chlorobenzene-d5	6.77	6.27	7.27	6.77	0.02

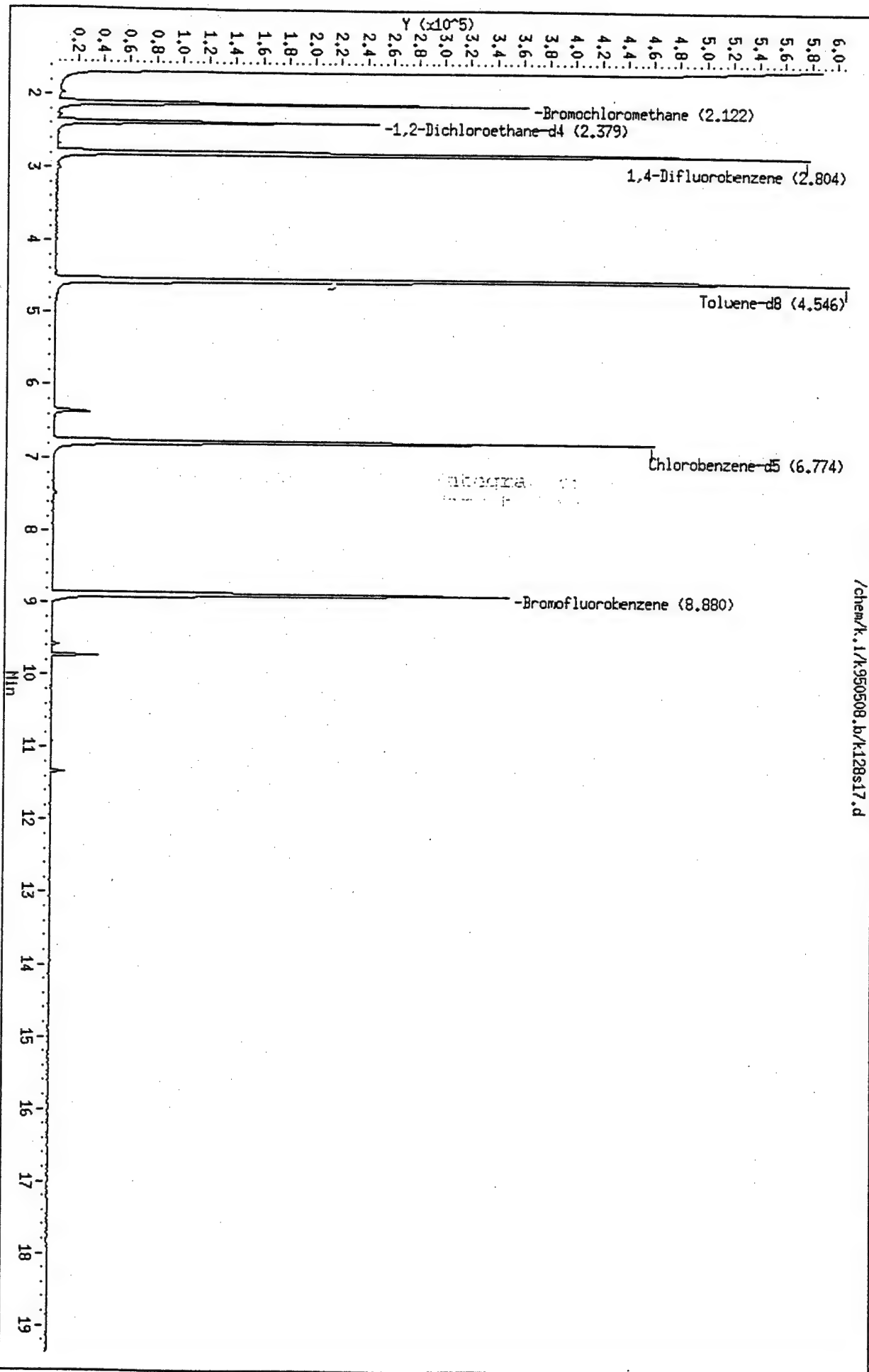
AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950508.b/k128s17.d  
Date : 08-MAY-1995 20:25  
Client ID:  
Sample Info: 9505164-05A-B2405/1X

Instrument: k.1  
Operator: HLM  
Column diameter: 0.25

Column phase: 30m,hp5ms,0.25u df

/chem/k.1/k950508.b/k128s17.d



Data File: /chem/h.i/h950515.b/h135s05.d  
Report Date: 16-May-1995 11:42

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s05.d

Lab Smp Id:

Inj Date : 15-MAY-95 21:59

Operator : LH

Inst ID: h.i

Smp Info : 9505164-05B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 14

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						( ng)	(ug/Kg)
=====	=====	==	=====	=====	=====	=====	=====
* 11 1,4-Dichlorobenzene-d4	152.00	4.469	4.477	(1.000)	159232	40	
* 32 Naphthalene-d8	136.00	5.666	5.674	(1.000)	570325	40	
* 48 Acenaphthene-d10	164.00	7.444	7.452	(1.000)	267554	40	
* 65 Phenanthrene-d10	188.00	8.937	8.945	(1.000)	353622	40	
* 76 Chrysene-d12	240.00	11.805	11.813	(1.000)	223780	40	
* 83 Perylene-d12	264.00	14.044	14.053	(1.000)	145607	40	
\$ 23 Nitrobenzene-d5	82.00	4.991	4.999	(0.881)	376352	83	1400
\$ 41 2-Fluorobiphenyl	172.00	6.757	6.765	(0.908)	699575	80	1300
\$ 72 Terphenyl-d14	244.00	10.572	10.580	(0.896)	506485	84	1400
\$ 4 Phenol-d5	99.00	4.185	4.193	(0.936)	574170	94	1600
\$ 3 2-Fluorophenol	112.00	3.486	3.458	(0.780)	440045	79	1300
\$ 61 2,4,6-Tribromophenol	329.70	8.262	8.258	(0.924)	183258	150	2500



SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s05.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	159232	29.43
32 Naphthalene-d8	418440	209220	836880	570325	36.30
48 Acenaphthene-d10	198324	99162	396648	267554	34.91
65 Phenanthrene-d10	270386	135193	540772	353622	30.78
76 Chrysene-d12	175926	87963	351852	223780	27.20
83 Perylene-d12	106536	53268	213072	145607	36.67

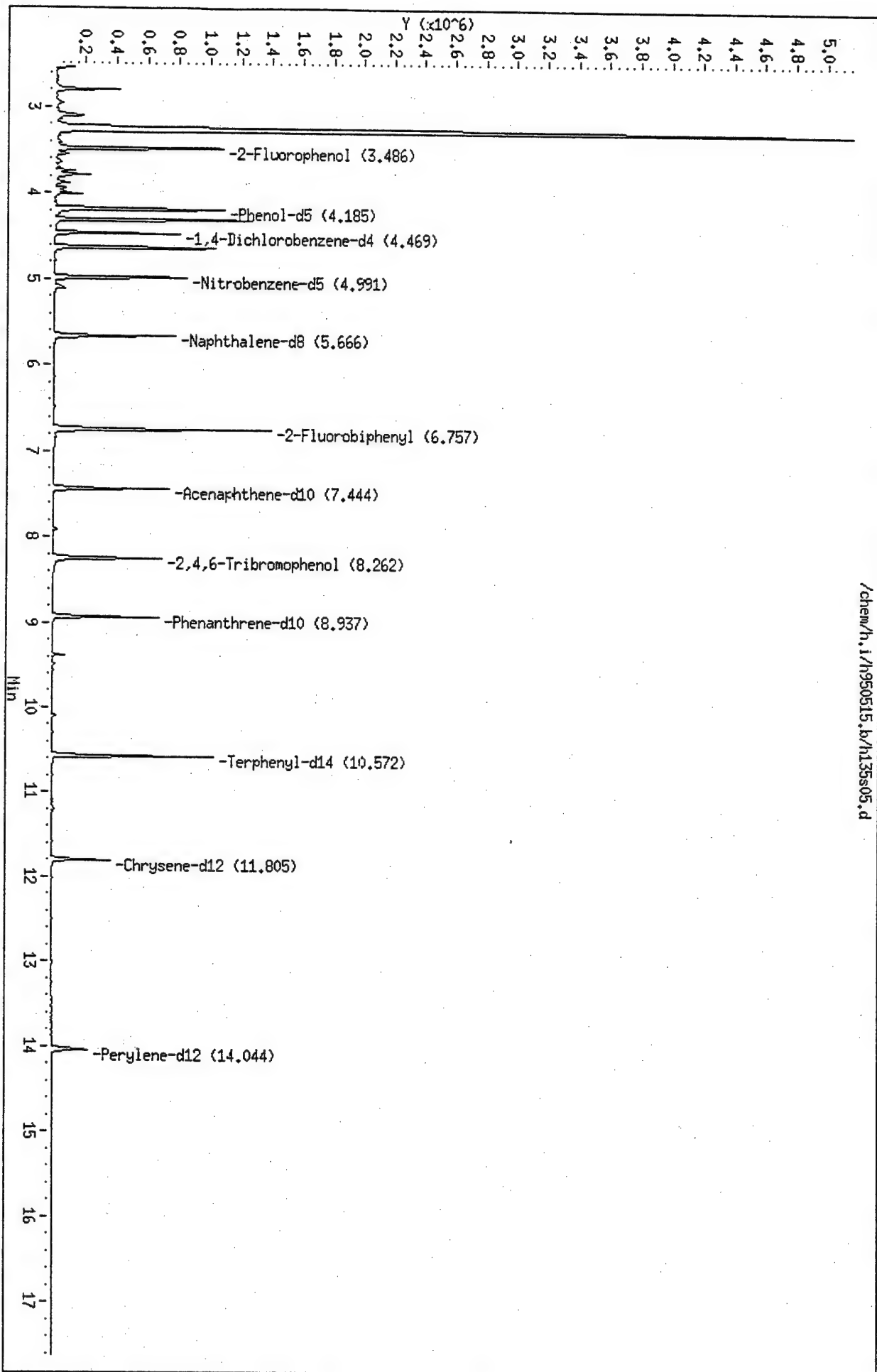
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.18
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.14
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.11
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.09
76 Chrysene-d12	11.81	11.31	12.31	11.80	-0.07
83 Perylene-d12	14.05	13.55	14.55	14.04	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s05.d  
Date : 15-MAY-95 21:59

Client ID:  
Sample Info: 9505164-05B-82705/LX  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-06

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:00:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	10	1	wt. %	
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95			
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg	
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	3	1	mg/Kg	
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95			

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
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PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-06

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:00:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95			
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	2.4	0.4	mg/Kg	

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



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Certificate of Analysis No. H9-9505164-06

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:00:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-06

Operational Tech

SAMPLE ID: 026-005BH 9.5-10

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	98	70	121
Toluene-d8	50 ug/Kg	106	84	138
4-Bromofluorobenzene	50 ug/Kg	90	59	113

ANALYZED BY: HLW

DATE/TIME: 05/08/95 20:52:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
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Certificate of Analysis No. H9-9505164-06

Operational Tech  
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San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH 9.5-10

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 14:00:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	1600	ug/Kg
Benzo(g,h,i)Perylene	ND	330	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	ND	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-06

Operational Tech

SAMPLE ID: 026-005BH 9.5-10

ANALYTICAL DATA (continued)			
PARAMETER	RESULTS	PQL*	UNITS
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno (1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)





## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-06

Operational Tech

SAMPLE ID: 026-005BH 9.5-10

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	85	23	120
2-Fluorobiphenyl	1600 ug/Kg	84	30	115
Terphenyl-d14	1600 ug/Kg	87	18	137
Phenol-d5	2500 ug/Kg	60	24	113
2-Fluorophenol	2500 ug/Kg	52	25	121
2,4,6-Tribromophenol	2500 ug/Kg	106	19	122

ANALYZED BY: LH

DATE/TIME: 05/15/95 22:24:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/k.i/k950508.b/k128s18.d  
Report Date: 12-May-1995 08:24

Page 1

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950508.b/k128s18.d  
Lab Smp Id: 9505164-06A-8240S/1X  
Inj Date : 08-MAY-1995 20:52  
Operator : HLW  
Smp Info : 9505164-06A-8240S/1X  
Misc Info : K128S1/K128B02/K127CS2  
Comment :  
Method : /chem/k.i/k950508.b/kvoclp.s.m  
Meth Date : 12-May-1995 08:16 hillery  
Cal Date : 08-MAY-1995 11:24  
Als bottle: 31  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i  
Quant Type: ISTD  
Cal File: k128cs2.d  
Compound Sublist: normal.sub

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.120	2.120	(1.000)	82232	250	
* 31 1,4-Difluorobenzene	114.00	2.802	2.802	(1.000)	492617	250	
* 51 Chlorobenzene-d5	117.00	6.772	6.772	(1.000)	345426	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.378	2.378	(1.121)	36776	240	49
\$ 40 Toluene-d8	98.00	4.545	4.545	(0.671)	556177	270	53
\$ 61 Bromofluorobenzene	95.00	8.878	8.878	(1.311)	171288	220	45

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k128s18.d  
Lab Smp Id: 9505164-06A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Misc Info: K128S1/K128B02/K127CS2

Calibration Date: 05/08/95  
Calibration Time: 1124

Level: LOW  
Sample Type: SOIL

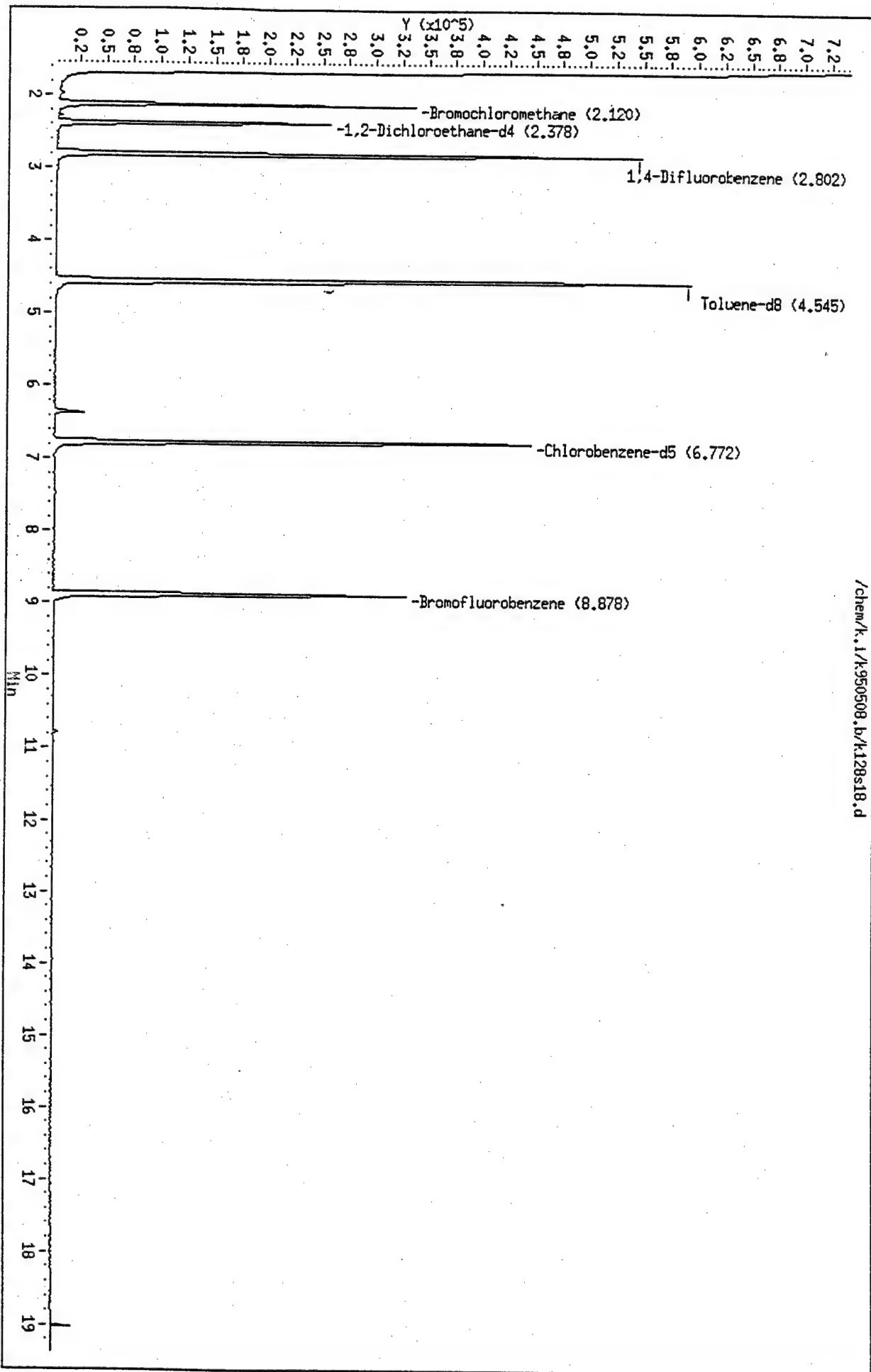
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	88679	44340	177358	82232	-7.27
31 1,4-Difluorobenzene	553116	276558	1106232	492617	-10.94
51 Chlorobenzene-d5	397197	198598	794394	345426	-13.03

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.00
31 1,4-Difluorobenzene	2.80	2.30	3.30	2.80	0.00
51 Chlorobenzene-d5	6.77	6.27	7.27	6.77	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950508.b/k128s18.d  
Date : 08-MAY-1995 20:52  
Client ID:  
Sample Info: 9505164-06R-8240S/1X  
Column phase: 30m,hp5ms,0.25u df

Instrument: k.1  
Operator: HLM  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s06.d

Lab Smp Id:

Inj Date : 15-MAY-95 22:24

Operator : LH

Inst ID: h.i

Smp Info : 9505164-06B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 15

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL	
						( ng)	(ug/Kg)	
* 11 1,4-Dichlorobenzene-d4	152.00	4.469	4.477	(1.000)	166470	40		
* 32 Naphthalene-d8	136.00	5.666	5.674	(1.000)	597604	40		
* 48 Acenaphthene-d10	164.00	7.444	7.452	(1.000)	282141	40		
* 65 Phenanthrene-d10	188.00	8.937	8.945	(1.000)	379157	40		
* 76 Chrysene-d12	240.00	11.805	11.813	(1.000)	258698	40		
* 83 Perylene-d12	264.00	14.044	14.053	(1.000)	163978	40		
\$ 23 Nitrobenzene-d5	82.00	4.991	4.999	(0.881)	389188	82	1400	
\$ 41 2-Fluorobiphenyl	172.00	6.757	6.765	(0.908)	742098	80	1300	
\$ 72 Terphenyl-d14	244.00	10.584	10.580	(0.897)	581618	83	1400	
\$ 4 Phenol-d5	99.00	4.185	4.193	(0.936)	577596	90	1500	
\$ 3 2-Fluorophenol	112.00	3.486	3.458	(0.780)	453030	78	1300	
\$ 61 2,4,6-Tribromophenol	329.70	8.261	8.258	(0.924)	206327	160	2600	

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s06.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526  
Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	166470	35.32
32 Naphthalene-d8	418440	209220	836880	597604	42.82
48 Acenaphthene-d10	198324	99162	396648	282141	42.26
65 Phenanthrene-d10	270386	135193	540772	379157	40.23
76 Chrysene-d12	175926	87963	351852	258698	47.05
83 Perylene-d12	106536	53268	213072	163978	53.92

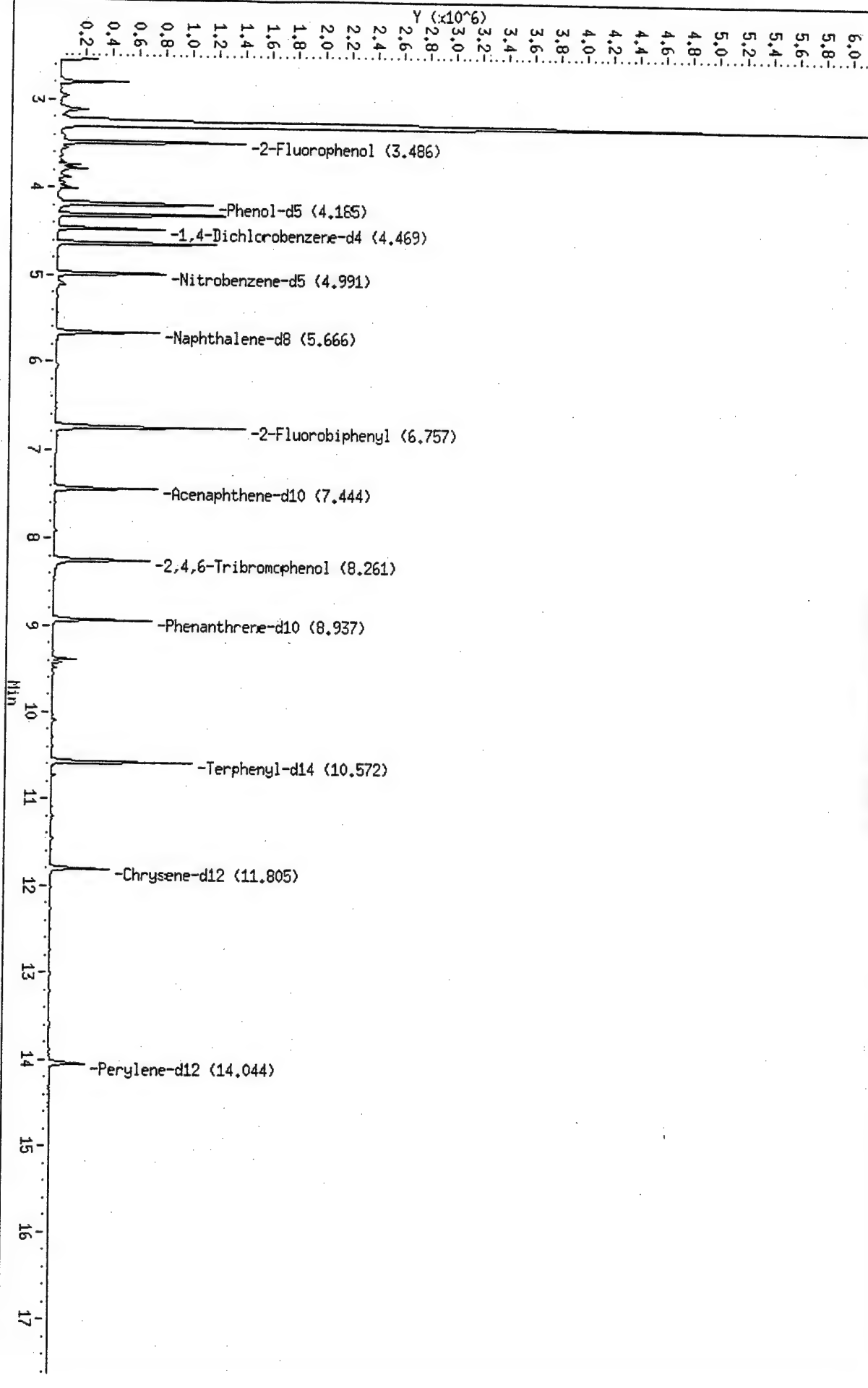
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.18
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.14
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.11
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.09
76 Chrysene-d12	11.81	11.31	12.31	11.80	-0.07
83 Perylene-d12	14.05	13.55	14.55	14.04	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s06.d  
Date : 15-MAY-95 22:24  
Client ID:  
Sample Info: 9505164-06B-82705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950515.b/h135s06.d





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-07

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-006BH 11.5-12

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:20:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	12	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	4	1	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-07

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-006BH 11.5-12

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:20:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	2.6	0.4	mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-07

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-006BH 11.5-12

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:20:00  
DATE RECEIVED: 05/04/95

#### ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-07

Operational Tech

SAMPLE ID: 026-006BH 11.5-12

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	98	70	121
Toluene-d8	50 ug/Kg	94	84	138
4-Bromofluorobenzene	50 ug/Kg	94	59	113

ANALYZED BY: HLW

DATE/TIME: 05/09/95 12:55:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit  
NA - Not Analyzed

ND - Not Detected

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-07

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-006BH 11.5-12

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:20:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	1600	ug/Kg
Benzo(g,h,i)Perylene	ND	330	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	ND	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-07

Operational Tech

SAMPLE ID: 026-006BH 11.5-12

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-07

Operational Tech

SAMPLE ID: 026-006BH 11.5-12

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	91	23	120
2-Fluorobiphenyl	1600 ug/Kg	85	30	115
Terphenyl-d14	1600 ug/Kg	83	18	137
Phenol-d5	2500 ug/Kg	64	24	113
2-Fluorophenol	2500 ug/Kg	54	25	121
2,4,6-Tribromophenol	2500 ug/Kg	109	19	122

ANALYZED BY: LH

DATE/TIME: 05/15/95 22:49:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129s01.d

Lab Smp Id: 9505164-07A-8240S/1X

Inj Date : 09-MAY-95 12:55

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-07A-8240S/1X

Misc Info : K129S1/K129B02/K129CS2

Comment :

Method : /chem/k.i/k950509.b/kvoclp.s.m

Meth Date : 09-May-1995 11:38 hillery Quant Type: ISTD

Cal Date : 09-MAY-1995 11:08 Cal File: k129cs2.d

Als bottle: 14

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	(ug/Kg)
* 20 Bromochloromethane	----	128.00	2.121	2.123	(1.000)	93613	250	
* 31 1,4-Difluorobenzene		114.00	2.803	2.789	(1.000)	537293	250	
* 51 Chlorobenzene-d5		117.00	6.758	6.759	(1.000)	406721	250	
\$ 23 1,2-Dichloroethane-d4		102.00	2.364	2.365	(1.114)	40424	240	49
\$ 40 Toluene-d8		98.00	4.531	4.532	(0.670)	591163	240	47
\$ 61 Bromofluorobenzene		95.00	8.864	8.865	(1.312)	207967	230	47

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129s01.d  
Lab Smp Id: 9505164-07A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Misc Info: K129S1/K129B02/K129CS2

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	93613	8.26
31 1,4-Difluorobenzene	552052	276026	1104104	537293	-2.67
51 Chlorobenzene-d5	389031	194516	778062	406721	4.55

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.06
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.80	0.50
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	-0.02

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/k.i/K950509.b/K129s01.d  
Date : 09-MAY-1995 12:55

Client ID:

Sample Info: 9505164-07A-8240S/1X

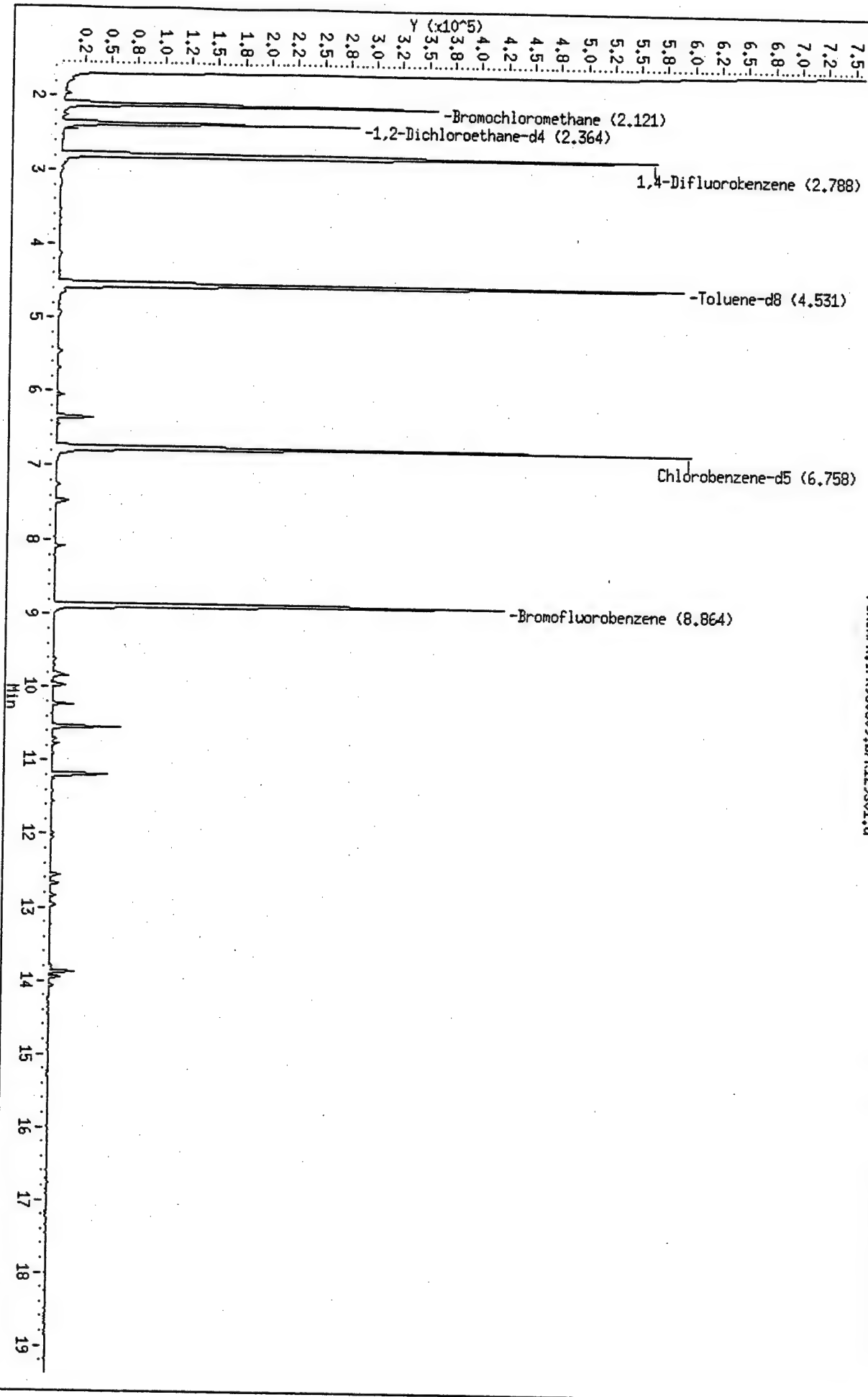
Column phase: 30m, hp5ms, 0.25u df

Instrument: k.i

Operator: HLM

Column diameter: 0.25

/chem/k.i/K950509.b/K129s01.d



Data File: /chem/h.i/h950515.b/h135s07.d  
Report Date: 16-May-1995 11:42

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s07.d

Lab Smp Id:

Inj Date : 15-MAY-95 22:49

Operator : LH

Inst ID: h.i

Smp Info : 9505164-07B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 16

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
*****	----	--	-----	-----	-----	-----	-----
* 11 1,4-Dichlorobenzene-d4	152.00	4.469	4.477	(1.000)	162295	40	
* 32 Naphthalene-d8	136.00	5.666	5.674	(1.000)	598303	40	
* 48 Acenaphthene-d10	164.00	7.444	7.452	(1.000)	296009	40	
* 65 Phenanthrene-d10	188.00	8.937	8.945	(1.000)	429271	40	
* 76 Chrysene-d12	240.00	11.805	11.813	(1.000)	309292	40	
* 83 Perylene-d12	264.00	14.045	14.053	(1.000)	195386	40	
\$ 23 Nitrobenzene-d5	82.00	4.991	4.999	(0.881)	416761	88	1500
\$ 41 2-Fluorobiphenyl	172.00	6.757	6.765	(0.908)	793389	82	1400
\$ 72 Terphenyl-d14	244.00	10.584	10.580	(0.897)	667570	80	1300
\$ 4 Phenol-d5	99.00	4.185	4.193	(0.936)	602329	96	1600
\$ 3 2-Fluorophenol	112.00	3.486	3.458	(0.780)	462593	81	1400
\$ 61 2,4,6-Tribromophenol	329.70	8.262	8.258	(0.924)	240116	160	2700

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s07.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: SOIL

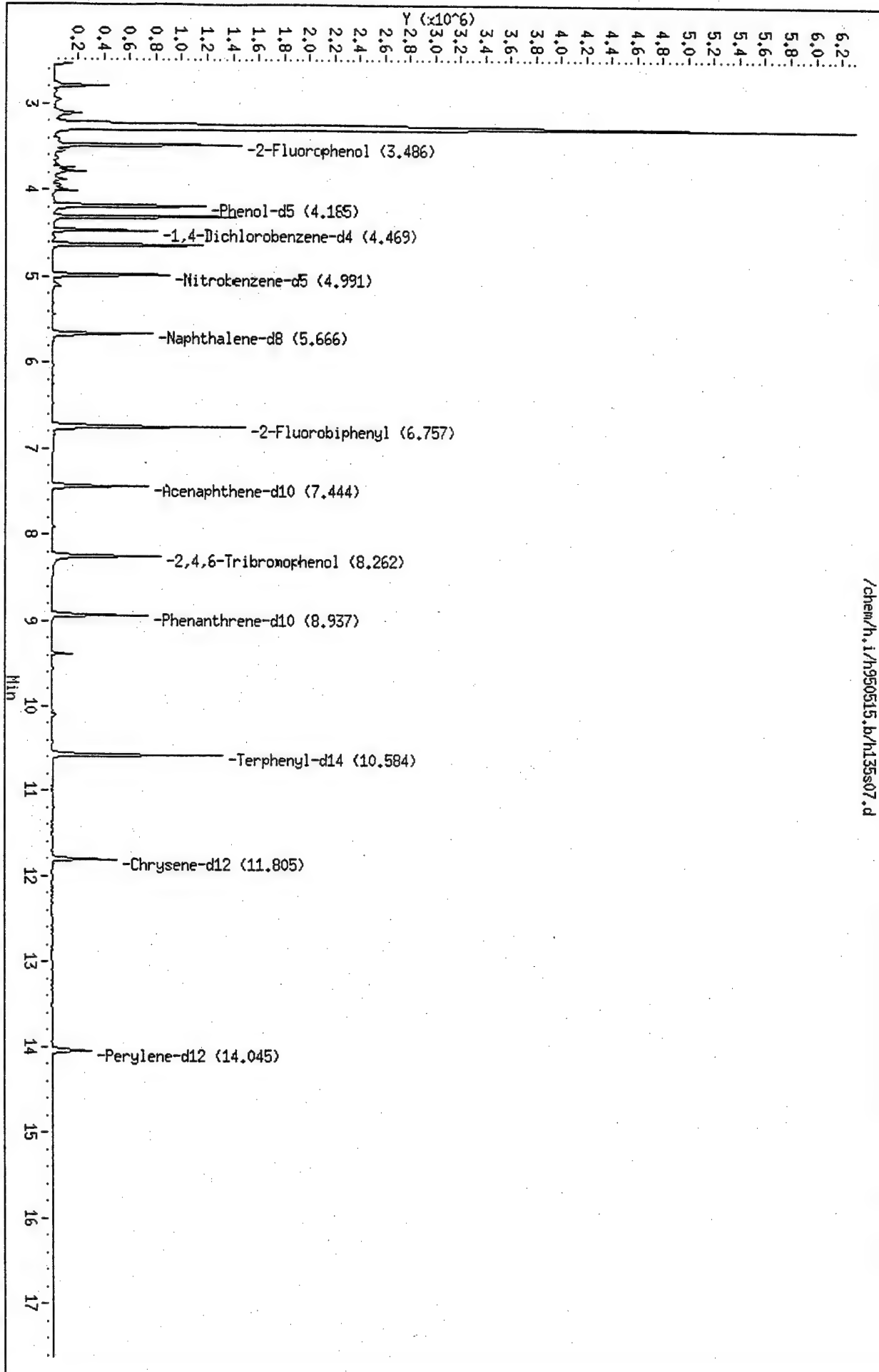
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	162295	31.92
32 Naphthalene-d8	418440	209220	836880	598303	42.98
48 Acenaphthene-d10	198324	99162	396648	296009	49.26
65 Phenanthrene-d10	270386	135193	540772	429271	58.76
76 Chrysene-d12	175926	87963	351852	309292	75.81
83 Perylene-d12	106536	53268	213072	195386	83.40

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.18
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.14
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.11
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.09
76 Chrysene-d12	11.81	11.31	12.31	11.80	-0.07
83 Perylene-d12	14.05	13.55	14.55	14.04	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s07.d  
Date: 15-MAY-95 22:49  
Client ID:  
Sample Info: 9505164-07B-82705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-08

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-006BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 12:45:00  
DATE RECEIVED: 05/04/95

PARAMETER	ANALYTICAL DATA		RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95			9	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95			05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95			ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95			5	1	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95			05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



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8880 INTERCHANGE DRIVE  
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Operational Tech  
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San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-006BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 12:45:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	2.4	0.4	mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



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PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-08

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-006BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 12:45:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-08

Operational Tech

SAMPLE ID: 026-006BH 2-2.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	94	70	121
Toluene-d8	50 ug/Kg	102	84	138
4-Bromofluorobenzene	50 ug/Kg	94	59	113

ANALYZED BY: HLW

DATE/TIME: 05/09/95 13:22:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-08

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-006BH 2-2.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 12:45:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	660	ug/Kg
Acenaphthylene	ND	660	ug/Kg
Aniline	ND	660	ug/Kg
Anthracene	ND	660	ug/Kg
Benzo(a)Anthracene	ND	660	ug/Kg
Benzo(b)Fluoranthene	ND	660	ug/Kg
Benzo(k)Fluoranthene	ND	660	ug/Kg
Benzo(a)Pyrene	ND	660	ug/Kg
Benzoic Acid	ND	660	ug/Kg
Benzo(g,h,i)Perylene	ND	3200	ug/Kg
Benzyl alcohol	ND	660	ug/Kg
4-Bromophenylphenyl ether	ND	660	ug/Kg
Butylbenzylphthalate	ND	660	ug/Kg
di-n-Butyl phthalate	ND	660	ug/Kg
Carbazole	ND	660	ug/Kg
4-Chloroaniline	ND	660	ug/Kg
bis(2-Chloroethoxy)Methane	ND	660	ug/Kg
bis(2-Chloroethyl)Ether	ND	660	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	660	ug/Kg
4-Chloro-3-Methylphenol	ND	660	ug/Kg
2-Chloronaphthalene	ND	660	ug/Kg
2-Chlorophenol	ND	660	ug/Kg
4-Chlorophenylphenyl ether	ND	660	ug/Kg
Chrysene	ND	660	ug/Kg
Dibenz(a,h)Anthracene	ND	660	ug/Kg
Dibenzofuran	ND	660	ug/Kg
1,2-Dichlorobenzene	ND	660	ug/Kg
1,3-Dichlorobenzene	ND	660	ug/Kg
1,4-Dichlorobenzene	ND	660	ug/Kg
3,3'-Dichlorobenzidine	ND	660	ug/Kg
2,4-Dichlorophenol	ND	660	ug/Kg
Diethylphthalate	ND	660	ug/Kg
2,4-Dimethylphenol	ND	660	ug/Kg
Dimethyl Phthalate	ND	660	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	660	ug/Kg
2,4-Dinitrophenol	ND	1600	ug/Kg
2,4-Dinitrotoluene	ND	1600	ug/Kg
2,6-Dinitrotoluene	ND	660	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-08

Operational Tech

SAMPLE ID: 026-006BH 2-2.5

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	660	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	660	ug/Kg
Fluoranthene	870	660	ug/Kg
Fluorene	ND	660	ug/Kg
Hexachlorobenzene	ND	660	ug/Kg
Hexachlorobutadiene	ND	660	ug/Kg
Hexachloroethane	ND	660	ug/Kg
Hexachlorocyclopentadiene	ND	660	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	660	ug/Kg
Isophorone	ND	660	ug/Kg
2-Methylnaphthalene	ND	660	ug/Kg
2-Methylphenol	ND	660	ug/Kg
4-Methylphenol	ND	660	ug/Kg
Naphthalene	ND	660	ug/Kg
2-Nitroaniline	ND	1600	ug/Kg
3-Nitroaniline	ND	1600	ug/Kg
4-Nitroaniline	ND	1600	ug/Kg
Nitrobenzene	ND	660	ug/Kg
2-Nitrophenol	ND	660	ug/Kg
4-Nitrophenol	ND	1600	ug/Kg
N-Nitrosodiphenylamine (1)	ND	660	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	660	ug/Kg
Di-n-Octyl Phthalate	ND	660	ug/Kg
Pentachlorophenol	ND	1600	ug/Kg
Phenanthrene	800	660	ug/Kg
Phenol	ND	660	ug/Kg
Pyrene	710	660	ug/Kg
Pyridine	ND	660	ug/Kg
1,2,4-Trichlorobenzene	ND	660	ug/Kg
2,4,5-Trichlorophenol	ND	1600	ug/Kg
2,4,6-Trichlorophenol	ND	660	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-08

Operational Tech

SAMPLE ID: 026-006BH 2-2.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	94	23	120
2-Fluorobiphenyl	1600 ug/Kg	100	30	115
Terphenyl-d14	1600 ug/Kg	98	18	137
Phenol-d5	2500 ug/Kg	76	24	113
2-Fluorophenol	2500 ug/Kg	62	25	121
2,4,6-Tribromophenol	2500 ug/Kg	100	19	122

ANALYZED BY: LH

DATE/TIME: 05/16/95 19:57:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129s02.d

Lab Smp Id: 9505164-08A-8240S/1X

Inj Date : 09-MAY-1995 13:22

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-08A-8240S/1X

Misc Info : K129S1/K129B02/K129CS2

Comment :

Method : /chem/k.i/k950509.b/kvoclp.s.m

Meth Date : 12-May-1995 10:45 hillery

Quant Type: ISTD

Cal Date : 09-MAY-1995 11:08

Cal File: k129cs2.d

Als bottle: 15

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
*****	----	--	-----	-----	-----	-----	-----
* 20 Bromochloromethane	128.00	2.120	2.123	(1.000)	92530	250	
* 31 1,4-Difluorobenzene	114.00	2.802	2.789	(1.000)	524307	250	
* 51 Chlorobenzene-d5	117.00	6.757	6.759	(1.000)	370045	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.363	2.365	(1.114)	38335	230	47
\$ 40 Toluene-d8	98.00	4.545	4.532	(0.673)	586421	260	51
\$ 61 Bromofluorobenzene	95.00	8.863	8.865	(1.312)	190415	240	47

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129s02.d  
Lab Smp Id: 9505164-08A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoc1ps.m  
Misc Info: K129S1/K129B02/K129CS2

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

COMPOUND =====	STANDARD =====	AREA LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
20 Bromochloromethane	86471	43236	172942	92530	7.01
31 1,4-Difluorobenzene	552052	276026	1104104	524307	-5.03
51 Chlorobenzene-d5	389031	194516	778062	370045	-4.88

COMPOUND =====	STANDARD =====	RT LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.10
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.80	0.46
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/K950509.b/K129s02.d  
Date : 09-MAY-1995 13:22

Client ID:

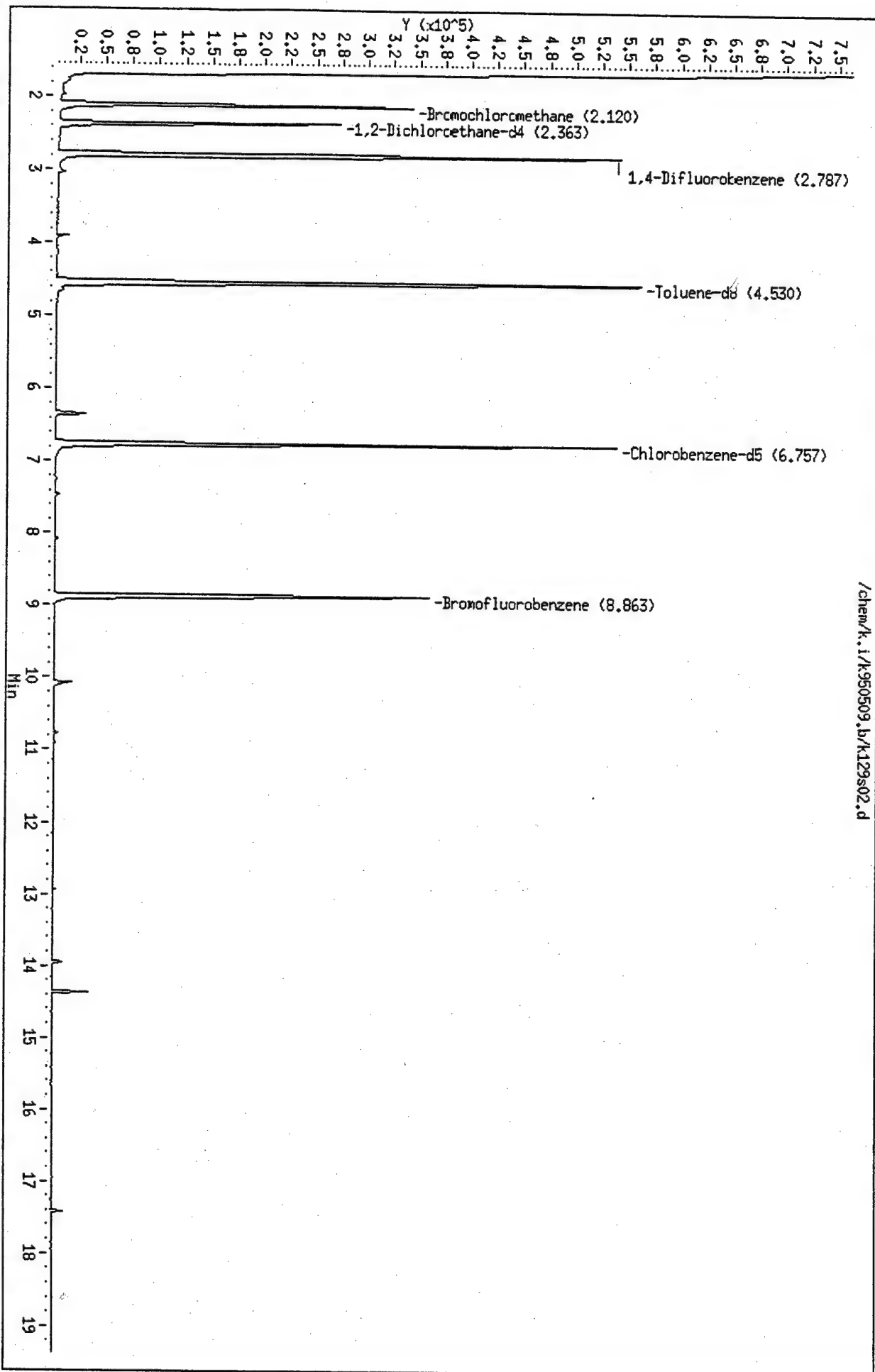
Sample Info: 9505164-08A-8240S/1X

Column phase: 30m,hp5ms,0.25u df

Instrument: k.i

Operator: HLM

Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136s13.d

Lab Smp Id:

Inj Date : 16-MAY-1995 19:57

Operator : LH

Smp Info : 9505164-08B-8270S/1X

Misc Info : E132S1/H132B02/H136IC1

Comment :

Method : /chem/h.i/h950516.b/hclps.m

Meth Date : 16-May-1995 16:57 liping

Cal Date : 16-MAY-1995 11:52

Als bottle: 17

Dil Factor: 2.000

Integrator: HP RTE

Target Version: 3.10

Inst ID: h.i

Quant Type: ISTD

Cal File: h136ic1.d

Compound Sublist: 8270.sub

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
-----	----	--	-----	-----	-----	-----	-----
66 Phenanthrene	178.00	8.921	8.945	(1.003)	200180	24	800
70 Fluoranthene	202.00	10.141	10.166	(1.140)	184320	26	870
71 Pyrene	202.00	10.378	10.391	(0.883)	130828	21	710
* 11 1,4-Dichlorobenzene-d4	152.00	4.441	4.454	(1.000)	137962	40	
* 32 Naphthalene-d8	136.00	5.638	5.651	(1.000)	501891	40	
* 48 Acenaphthene-d10	164.00	7.404	7.417	(1.000)	234319	40	
* 65 Phenanthrene-d10	188.00	8.897	8.922	(1.000)	283903	40	
* 76 Chrysene-d12	240.00	11.753	11.777	(1.000)	153893	40	
* 83 Perylene-d12	264.00	13.981	13.993	(1.000)	97228	40	
\$ 23 Nitrobenzene-d5	82.00	4.951	4.964	(0.878)	184560	45	1500
\$ 41 2-Fluorobiphenyl	172.00	6.717	6.729	(0.907)	369515	48	1600
\$ 72 Terphenyl-d14	244.00	10.533	10.545	(0.896)	201818	47	1600
\$ 4 Phenol-d5	99.00	4.145	4.158	(0.933)	285868	57	1900
\$ 3 2-Fluorophenol	112.00	3.446	3.423	(0.776)	216135	46	1500
\$ 61 2,4,6-Tribromophenol	329.70	8.222	8.234	(0.924)	85903	75	2500

Date: 16-MAY-1995 19:57

Client ID:

Instrument: h.i

Sample Info: 9505164-08B-8270S/1X

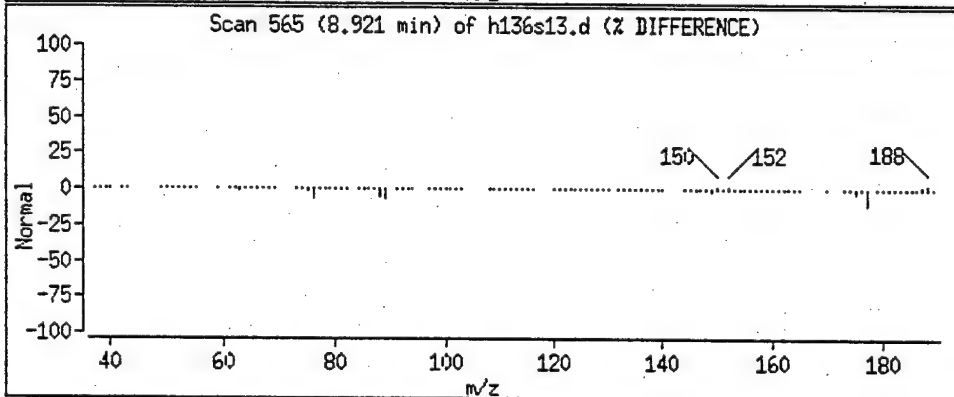
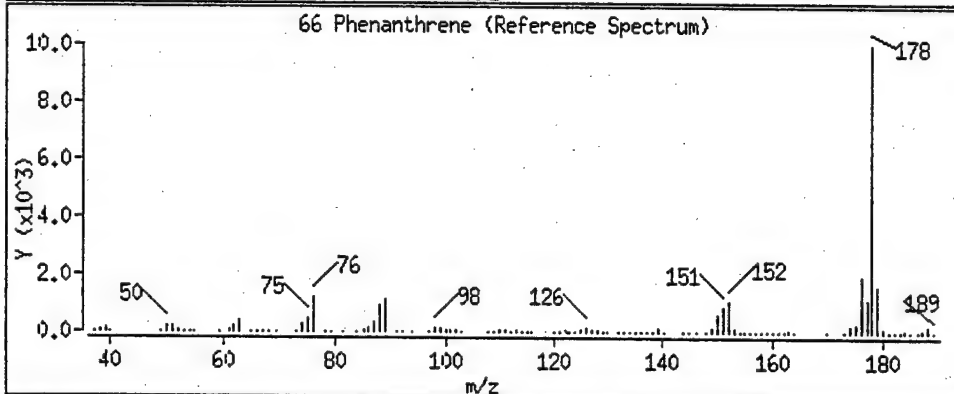
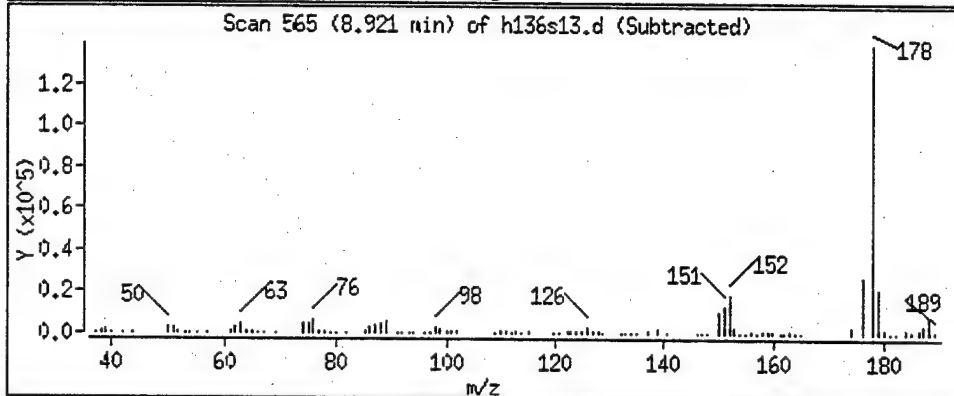
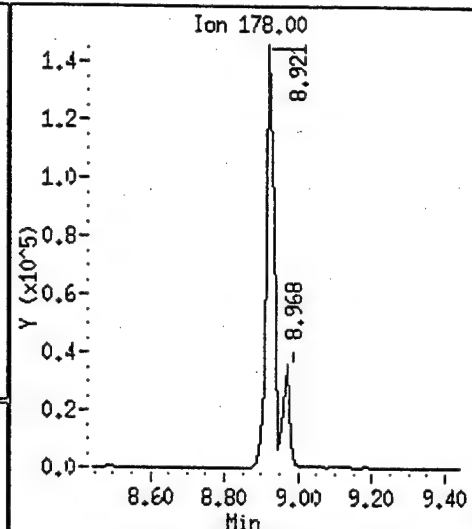
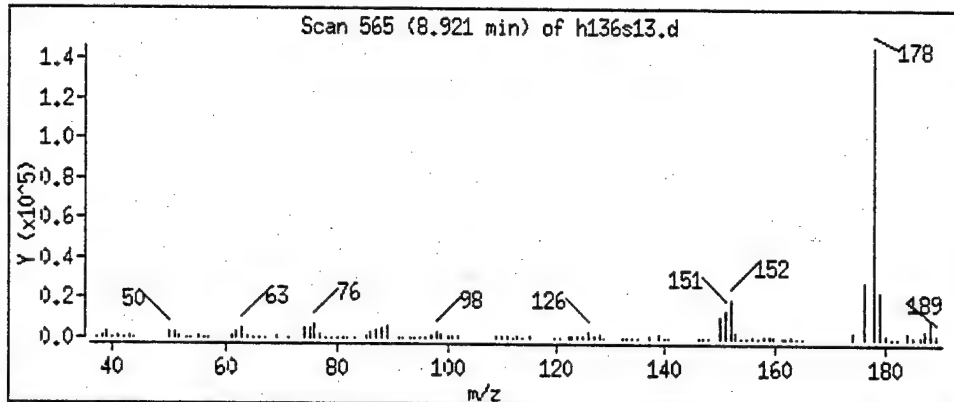
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

66 Phenanthrene





Date : 16-MAY-1995 19:57

Client ID:

Instrument: h.i

Sample Info: 9505164-08B-82705/1X

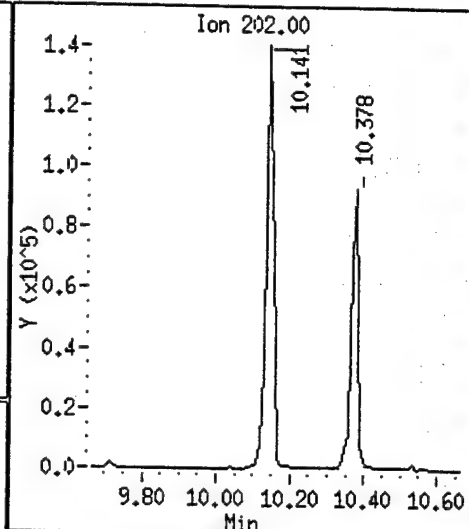
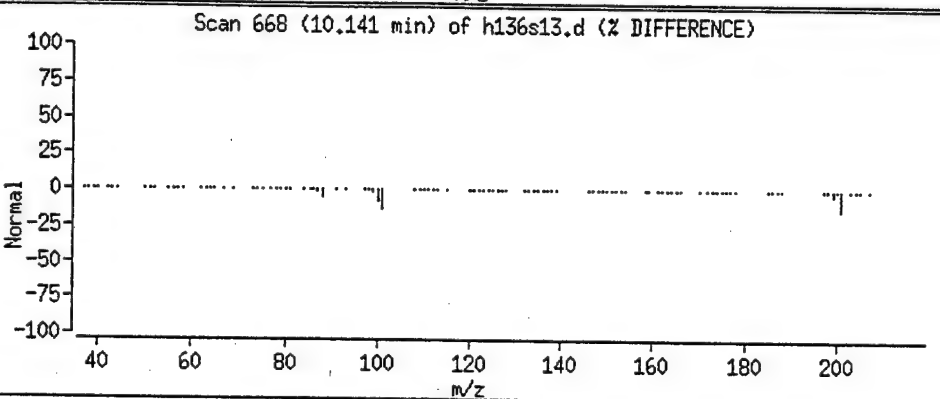
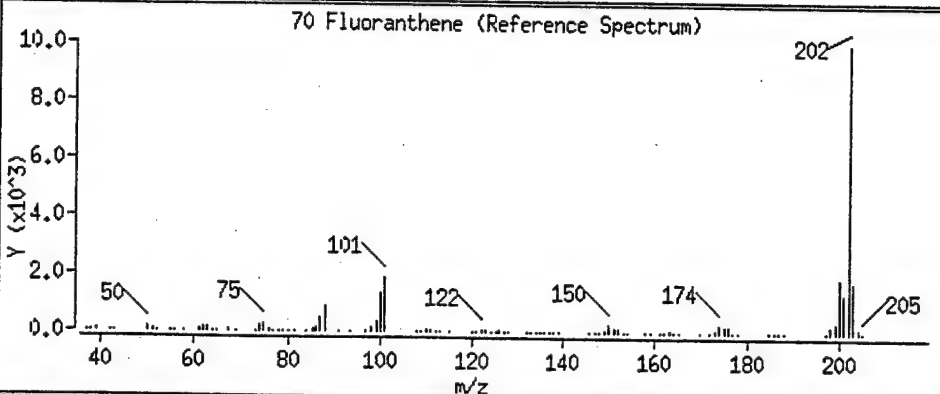
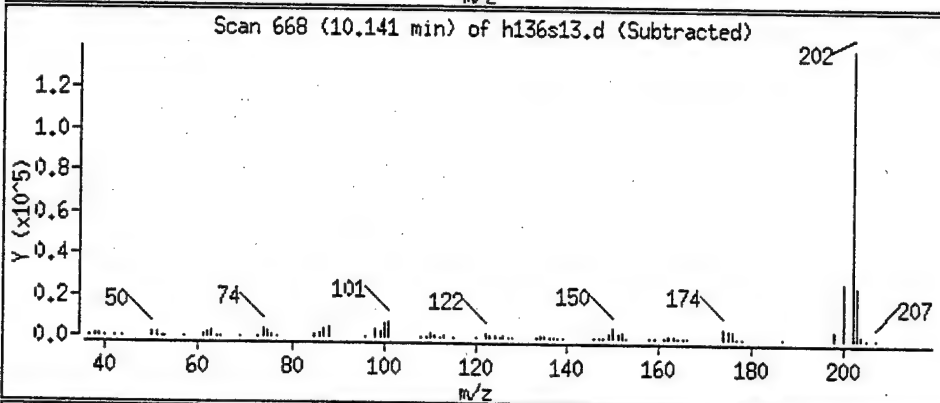
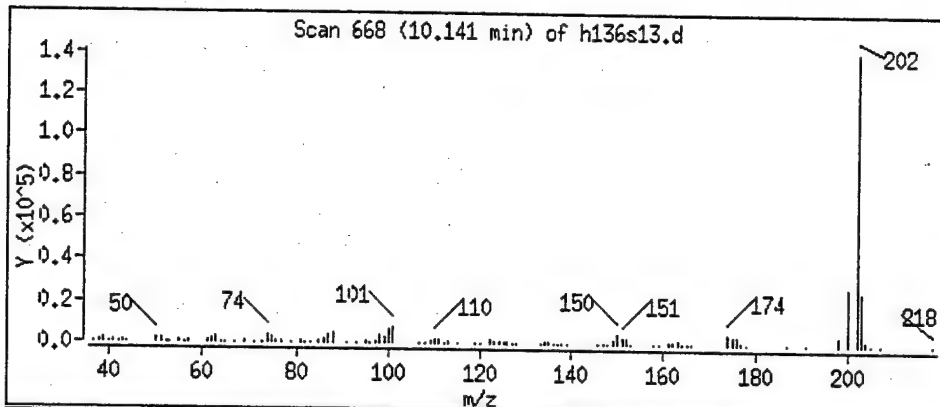
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

## 70 Fluoranthene



Date: 16-MAY-1995 19:57

Client ID:

Instrument: h.i

Sample Info: 9505164-08B-8270S/1X

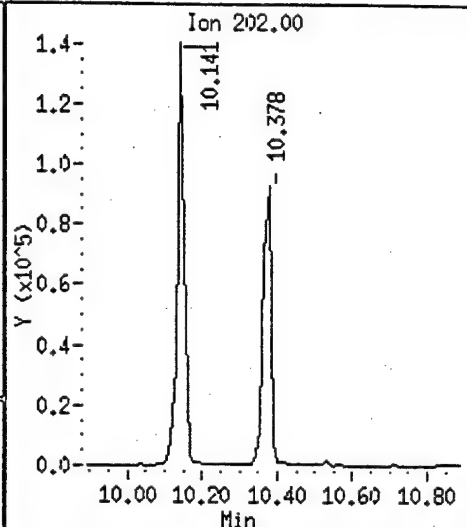
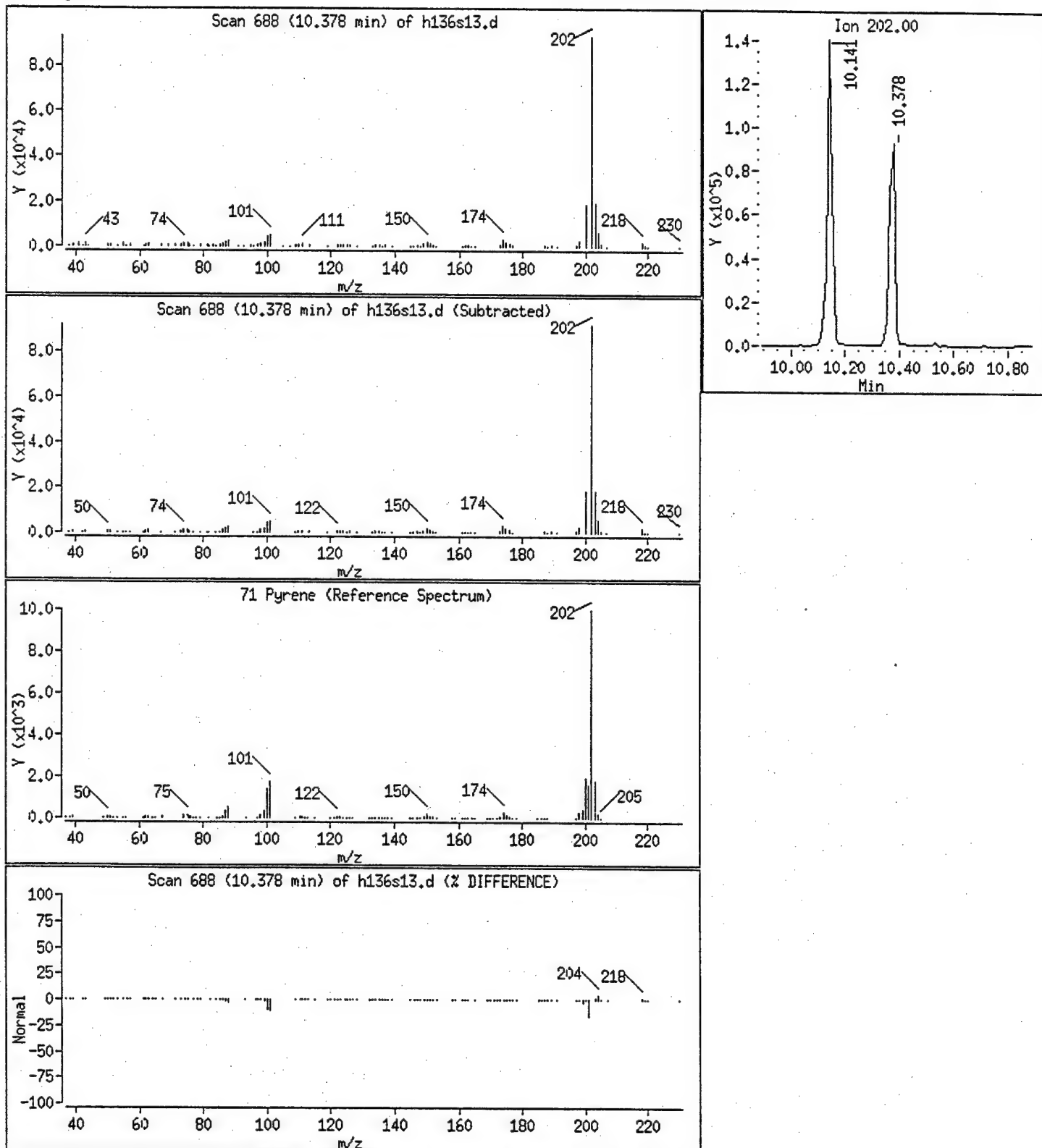
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

71 Pyrene





## Certificate of Analysis No. H9-9505164-09

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH .5-1.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:48:00  
DATE RECEIVED: 05/04/95

## ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	9	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	8	1	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
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Certificate of Analysis No. H9-9505164-09

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH .5-1.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:48:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	4.2	0.4	mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505164-09

HOUSTON LABORATORY  
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Operational Tech  
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San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH .5-1.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:48:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA				
PARAMETER	RESULTS	PQL*	UNITS	
Acetone	ND	100	ug/Kg	
Benzene	ND	5	ug/Kg	
Bromodichloromethane	ND	5	ug/Kg	
Bromoform	ND	5	ug/Kg	
Bromomethane	ND	10	ug/Kg	
2-Butanone	ND	20	ug/Kg	
Carbon Disulfide	ND	5	ug/Kg	
Carbon Tetrachloride	ND	5	ug/Kg	
Chlorobenzene	ND	5	ug/Kg	
Chloroethane	ND	10	ug/Kg	
2-Chloroethylvinylether	ND	10	ug/Kg	
Chloroform	ND	5	ug/Kg	
Chloromethane	ND	10	ug/Kg	
Dibromochloromethane	ND	5	ug/Kg	
1,1-Dichloroethane	ND	5	ug/Kg	
1,1-Dichloroethene	ND	5	ug/Kg	
1,2-Dichloroethane	ND	5	ug/Kg	
total-1,2-Dichloroethene	ND	5	ug/Kg	
1,2-Dichloropropane	ND	5	ug/Kg	
cis-1,3-Dichloropropene	ND	5	ug/Kg	
trans-1,3-Dichloropropene	ND	5	ug/Kg	
Ethylbenzene	ND	5	ug/Kg	
2-Hexanone	ND	10	ug/Kg	
Methylene Chloride	ND	5	ug/Kg	
4-Methyl-2-Pentanone	ND	10	ug/Kg	
Styrene	ND	5	ug/Kg	
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg	
Tetrachloroethene	ND	5	ug/Kg	
Toluene	7	5	ug/Kg	
1,1,1-Trichloroethane	ND	5	ug/Kg	
1,1,2-Trichloroethane	ND	5	ug/Kg	
Trichloroethene	ND	5	ug/Kg	
Trichlorofluoromethane	ND	5	ug/Kg	
Vinyl Acetate	ND	10	ug/Kg	
Vinyl Chloride	ND	10	ug/Kg	
Xylenes (total)	ND	5	ug/Kg	

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-09

Operational Tech

SAMPLE ID: 026-005BH .5-1.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	96	70	121
Toluene-d8	50 ug/Kg	98	84	138
4-Bromofluorobenzene	50 ug/Kg	96	59	113

ANALYZED BY: HLW

DATE/TIME: 05/09/95 13:49:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
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Certificate of Analysis No. H9-9505164-09

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-005BH .5-1.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:48:00  
DATE RECEIVED: 05/04/95

#### ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	990	ug/Kg
Acenaphthylene	ND	990	ug/Kg
Aniline	ND	990	ug/Kg
Anthracene	ND	990	ug/Kg
Benzo(a)Anthracene	ND	990	ug/Kg
Benzo(b)Fluoranthene	ND	990	ug/Kg
Benzo(k)Fluoranthene	ND	990	ug/Kg
Benzo(a)Pyrene	ND	990	ug/Kg
Benzoic Acid	ND	4800	ug/Kg
Benzo(g,h,i)Perylene	ND	990	ug/Kg
Benzyl alcohol	ND	990	ug/Kg
4-Bromophenylphenyl ether	ND	990	ug/Kg
Butylbenzylphthalate	ND	990	ug/Kg
di-n-Butyl phthalate	ND	990	ug/Kg
Carbazole	ND	990	ug/Kg
4-Chloroaniline	ND	990	ug/Kg
bis(2-Chloroethoxy)Methane	ND	990	ug/Kg
bis(2-Chloroethyl)Ether	ND	990	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	990	ug/Kg
4-Chloro-3-Methylphenol	ND	990	ug/Kg
2-Chloronaphthalene	ND	990	ug/Kg
2-Chlorophenol	ND	990	ug/Kg
4-Chlorophenylphenyl ether	ND	990	ug/Kg
Chrysene	ND	990	ug/Kg
Dibenz(a,h)Anthracene	ND	990	ug/Kg
Dibenzofuran	ND	990	ug/Kg
1,2-Dichlorobenzene	ND	990	ug/Kg
1,3-Dichlorobenzene	ND	990	ug/Kg
1,4-Dichlorobenzene	ND	990	ug/Kg
3,3'-Dichlorobenzidine	ND	990	ug/Kg
2,4-Dichlorophenol	ND	990	ug/Kg
Diethylphthalate	ND	990	ug/Kg
2,4-Dimethylphenol	ND	990	ug/Kg
Dimethyl Phthalate	ND	990	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	2400	ug/Kg
2,4-Dinitrophenol	ND	2400	ug/Kg
2,4-Dinitrotoluene	ND	990	ug/Kg
2,6-Dinitrotoluene	ND	990	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-09

Operational Tech

SAMPLE ID: 026-005BH .5-1.5

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	990	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	990	ug/Kg
Fluoranthene	ND	990	ug/Kg
Fluorene	ND	990	ug/Kg
Hexachlorobenzene	ND	990	ug/Kg
Hexachlorobutadiene	ND	990	ug/Kg
Hexachloroethane	ND	990	ug/Kg
Hexachlorocyclopentadiene	ND	990	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	990	ug/Kg
Isophorone	ND	990	ug/Kg
2-Methylnaphthalene	ND	990	ug/Kg
2-Methylphenol	ND	990	ug/Kg
4-Methylphenol	ND	990	ug/Kg
Naphthalene	ND	990	ug/Kg
2-Nitroaniline	ND	2400	ug/Kg
3-Nitroaniline	ND	2400	ug/Kg
4-Nitroaniline	ND	2400	ug/Kg
Nitrobenzene	ND	990	ug/Kg
2-Nitrophenol	ND	990	ug/Kg
4-Nitrophenol	ND	2400	ug/Kg
N-Nitrosodiphenylamine (1)	ND	990	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	990	ug/Kg
Di-n-Octyl Phthalate	ND	990	ug/Kg
Pentachlorophenol	ND	2400	ug/Kg
Phenanthrene	ND	990	ug/Kg
Phenol	ND	990	ug/Kg
Pyrene	ND	990	ug/Kg
Pyridine	ND	990	ug/Kg
1,2,4-Trichlorobenzene	ND	990	ug/Kg
2,4,5-Trichlorophenol	ND	2400	ug/Kg
2,4,6-Trichlorophenol	ND	990	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-09

Operational Tech

SAMPLE ID: 026-005BH .5-1.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	84	23	120
2-Fluorobiphenyl	1600 ug/Kg	89	30	115
Terphenyl-d14	1600 ug/Kg	92	18	137
Phenol-d5	2500 ug/Kg	76	24	113
2-Fluorophenol	2500 ug/Kg	61	25	121
2,4,6-Tribromophenol	2500 ug/Kg	87	19	122

ANALYZED BY: LH

DATE/TIME: 05/16/95 00:28:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129s03.d

Lab Smp Id: 9505164-09A-8240S/1X

Inj Date : 09-MAY-1995 13:49

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-09A-8240S/1X

Misc Info : K129S1/K129B02/K129CS2

Comment :

Method : /chem/k.i/k950509.b/kvoclp.s.m

Meth Date : 12-May-1995 10:45 hillery Quant Type: ISTD

Cal Date : 09-MAY-1995 11:08 Cal File: k129cs2.d

Als bottle: 16

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
43 Toluene	92.00	4.650	4.638	(0.688)	60598	33	7
53 Ethylbenzene	106.00	7.256	7.244	(1.074)	13224	14	3 (aH)
* 20 Bromochloromethane	128.00	2.119	2.123	(1.000)	92068	250	
* 31 1,4-Difluorobenzene	114.00	2.801	2.789	(1.000)	524633	250	
* 51 Chlorobenzene-d5	117.00	6.756	6.759	(1.000)	388205	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.377	2.365	(1.122)	38695	240	48
\$ 40 Toluene-d8	98.00	4.544	4.532	(0.673)	586053	240	49
\$ 61 Bromofluorobenzene	95.00	8.862	8.865	(1.312)	204391	240	48

QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation (BLOQ).

H - Operator selected an alternate compound hit.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129s03.d  
Lab Smp Id: 9505164-09A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Misc Info: K129S1/K129B02/K129CS2

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

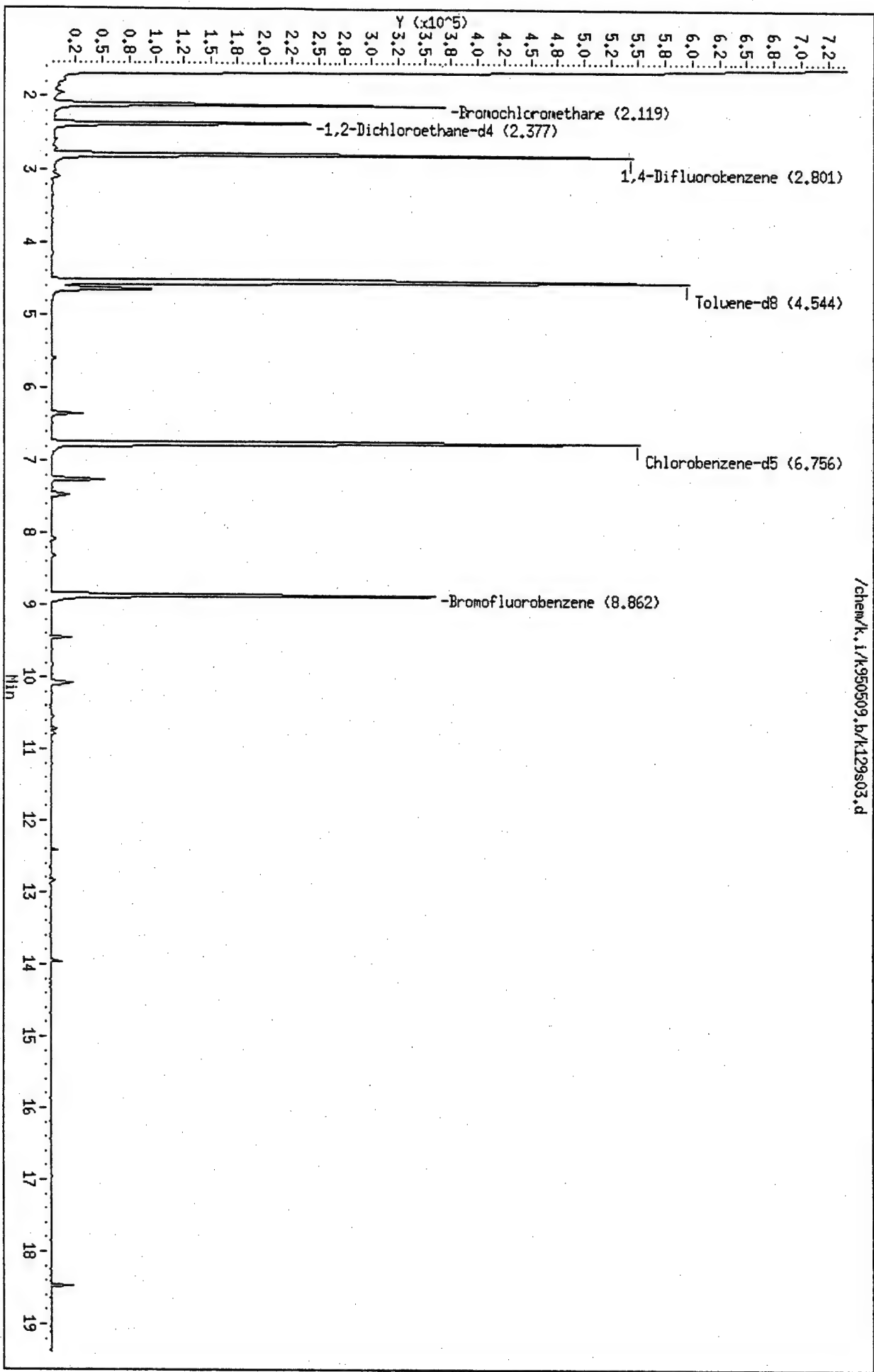
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	92068	6.47
31 1,4-Difluorobenzene	552052	276026	1104104	524633	-4.97
51 Chlorobenzene-d5	389031	194516	778062	388205	-0.21

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.16
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.80	0.43
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	-0.05

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950509.b/k129s03.d  
Date : 09-MAY-1995 13:49  
Client ID:  
Sample Info: 9505164-09A-82405/1X  
Column phase: 30m,hp5ms,0.25u df

Instrument: k.1  
Operator: HLW  
Column diameter: 0.25



/chem/k.1/k950509.b/k129s03.d

Date : 09-MAY-1995 13:49

Client ID:

Instrument: k.i

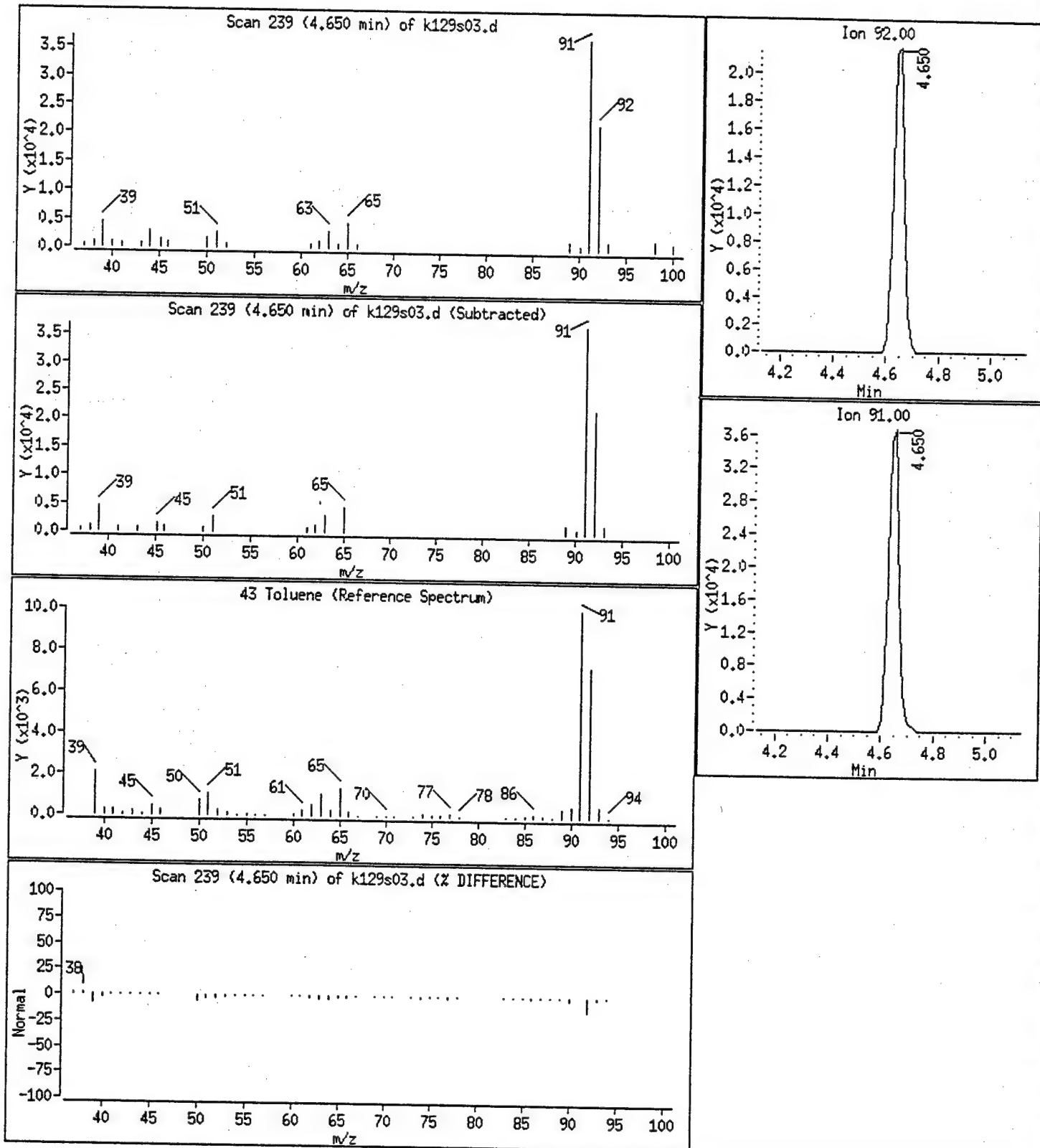
Sample Info: 9505164-09A-8240S/1X

Operator: HLW

Column phase: 30m,hp5ms,0.25u df

Column diameter: 0.25

43 Toluene



Date : 09-MAY-1995 13:49

Client ID:

Instrument: k.i

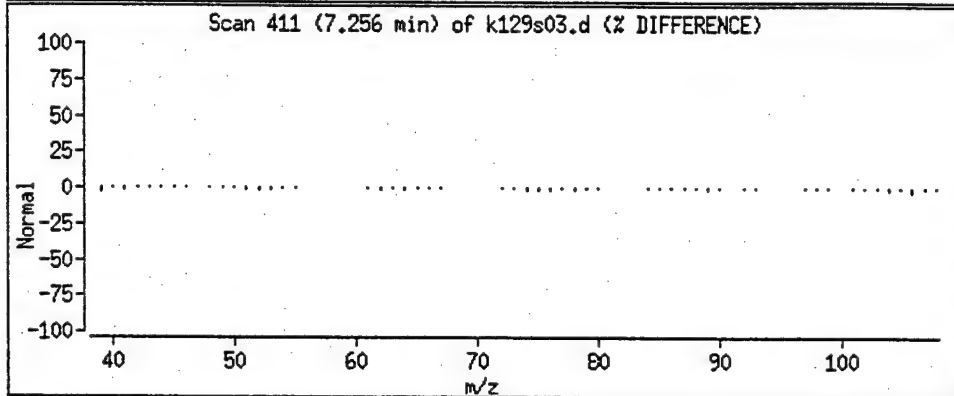
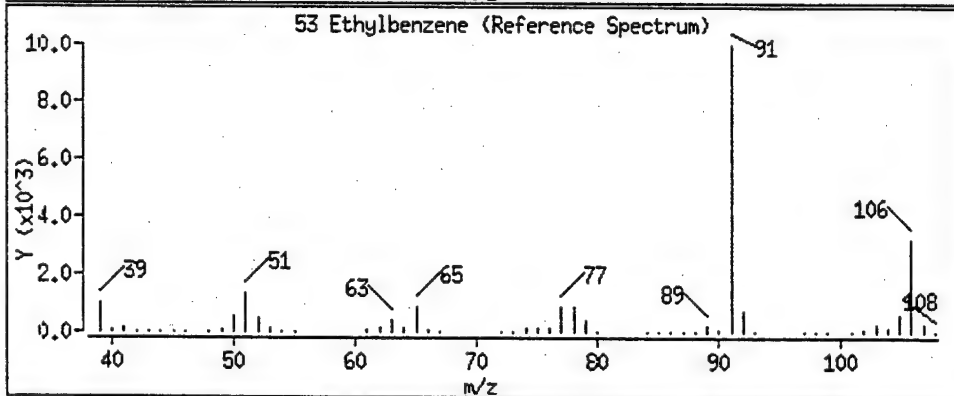
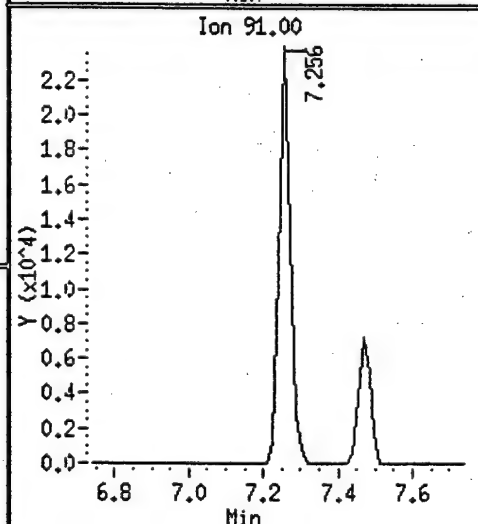
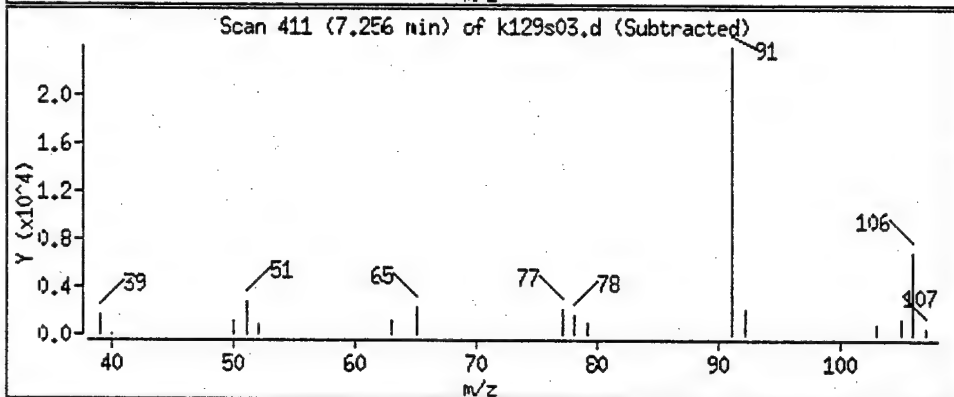
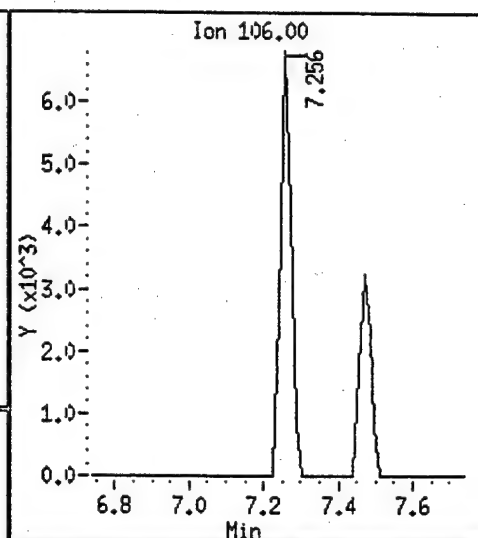
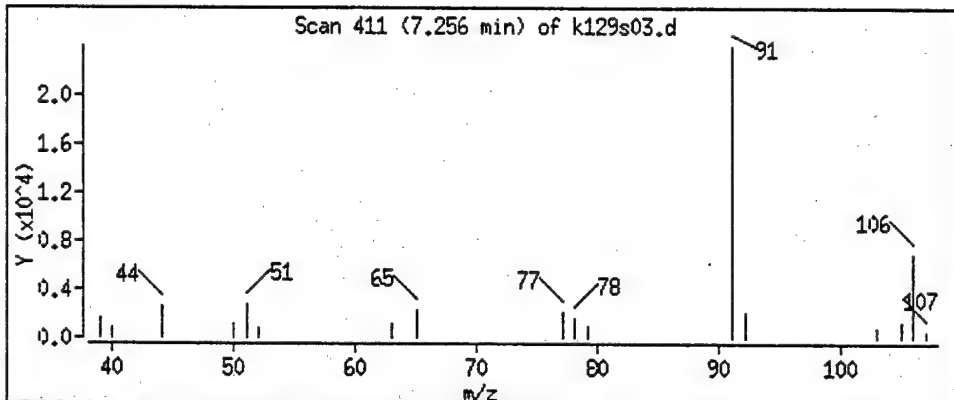
Sample Info: 9505164-09A-8240S/1X

Operator: HLW

Column phase: 30m, hp5ms, 0.25u df

Column diameter: 0.25

## 53 Ethylbenzene



SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s11.d

Lab Smp Id:

Inj Date : 16-MAY-95 00:28

Operator : LH

Inst ID: h.i

Smp Info : 9505164-09B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 20

Dil Factor: 3.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG				CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
	=====	====	=====	=====	=====	( ng)	(ug/Kg)
* 11 1,4-Dichlorobenzene-d4	152.00	4.473	4.477	(1.000)	147915	40	
* 32 Naphthalene-d8	136.00	5.670	5.674	(1.000)	557083	40	
* 48 Acenaphthene-d10	164.00	7.447	7.452	(1.000)	290061	40	
* 65 Phenanthrene-d10	188.00	8.940	8.945	(1.000)	410803	40	
* 76 Chrysene-d12	240.00	11.808	11.813	(1.000)	238667	40	
* 83 Perylene-d12	264.00	14.060	14.053	(1.000)	141897	40	
\$ 23 Nitrobenzene-d5	82.00	4.982	4.999	(0.879)	119342	27	1300
\$ 41 2-Fluorobiphenyl	172.00	6.760	6.765	(0.908)	271166	28	1400
\$ 72 Terphenyl-d14	244.00	10.576	10.580	(0.896)	189758	29	1500
\$ 4 Phenol-d5	99.00	4.188	4.193	(0.936)	214995	38	1900
\$ 3 2-Fluorophenol	112.00	3.465	3.458	(0.775)	157633	30	1500
\$ 61 2,4,6-Tribromophenol	329.70	8.265	8.258	(0.924)	61432	44	2200

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s11.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	147915	20.23
32 Naphthalene-d8	418440	209220	836880	557083	33.13
48 Acenaphthene-d10	198324	99162	396648	290061	46.26
65 Phenanthrene-d10	270386	135193	540772	410803	51.93
76 Chrysene-d12	175926	87963	351852	238667	35.66
83 Perylene-d12	106536	53268	213072	141897	33.19

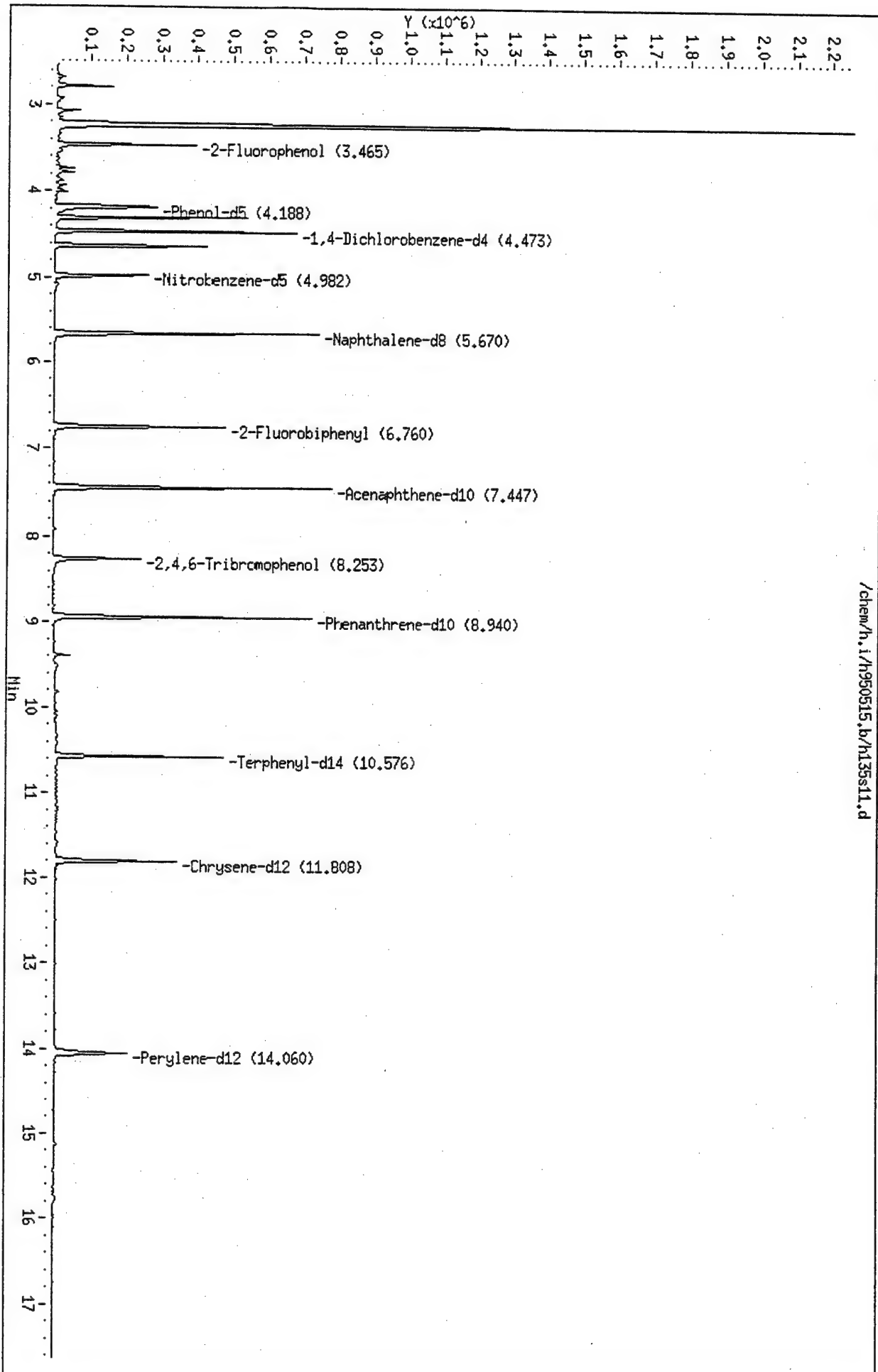
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.11
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.08
48 Acenaphthene-d10	7.45	6.95	7.95	7.45	-0.06
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.05
76 Chrysene-d12	11.81	11.31	12.31	11.81	-0.04
83 Perylene-d12	14.05	13.55	14.55	14.06	0.05

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/h.i/h950515.b/h135s11.d  
Date: 16-MAY-95 00:28  
Client ID:  
Sample Info: 9505164-09B-82705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-10

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Moisture, E.P.A. METHOD CLP SOW Analyzed by: CA Date: 05/10/95	8	1	wt. %
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	ND	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	6	1	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
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Certificate of Analysis No. H9-9505164-10

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	2.5	0.4	mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



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8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-10

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-10

Operational Tech

SAMPLE ID: 026-001BH 9-9.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	94	70	121
Toluene-d8	50 ug/Kg	98	84	138
4-Bromofluorobenzene	50 ug/Kg	92	59	113

ANALYZED BY: HLW

DATE/TIME: 05/09/95 14:15:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-10

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	330	ug/Kg
Benzo(g,h,i)Perylene	ND	1600	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	ND	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-10

Operational Tech

SAMPLE ID: 026-001BH 9-9.5

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno (1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	ND	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-10

Operational Tech

SAMPLE ID: 026-001BH 9-9.5

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	87	23	120
2-Fluorobiphenyl	1600 ug/Kg	85	30	115
Terphenyl-d14	1600 ug/Kg	84	18	137
Phenol-d5	2500 ug/Kg	60	24	113
2-Fluorophenol	2500 ug/Kg	49	25	121
2,4,6-Tribromophenol	2500 ug/Kg	91	19	122

ANALYZED BY: LH

DATE/TIME: 05/15/95 23:13:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



SPL Labs

Volatiles by 8240  
Data file : /chem/k.i/k950509.b/k129s04.d  
Lab Smp Id: 9505164-10A-8240S/1X  
Inj Date : 09-MAY-1995 14:15  
Operator : HLW  
Smp Info : 9505164-10A-8240S/1X  
Misc Info : K129S1/K129B02/K129CS2  
Comment :  
Method : /chem/k.i/k950509.b/kvoclp.s.m  
Meth Date : 12-May-1995 10:45 hillery  
Cal Date : 09-MAY-1995 11:08  
Als bottle: 17  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i  
Quant Type: ISTD  
Cal File: k129cs2.d  
Compound Sublist: normal.sub

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
	=====	----	-----	-----	-----	( ng)	(ug/Kg)
* 20 Bromochloromethane	128.00	2.119	2.123	(1.000)	89799	250	
* 31 1,4-Difluorobenzene	114.00	2.801	2.789	(1.000)	523295	250	
* 51 Chlorobenzene-d5	117.00	6.756	6.759	(1.000)	391181	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.377	2.365	(1.122)	37441	240	47
\$ 40 Toluene-d8	98.00	4.544	4.532	(0.673)	586839	240	49
\$ 61 Bromofluorobenzene	95.00	8.862	8.865	(1.312)	198677	230	46

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129s04.d  
Lab Smp Id: 9505164-10A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Misc Info: K129S1/K129B02/K129CS2

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

COMPOUND =====	STANDARD =====	AREA LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
20 Bromochloromethane	86471	43236	172942	89799	3.85
31 1,4-Difluorobenzene	552052	276026	1104104	523295	-5.21
51 Chlorobenzene-d5	389031	194516	778062	391181	0.55

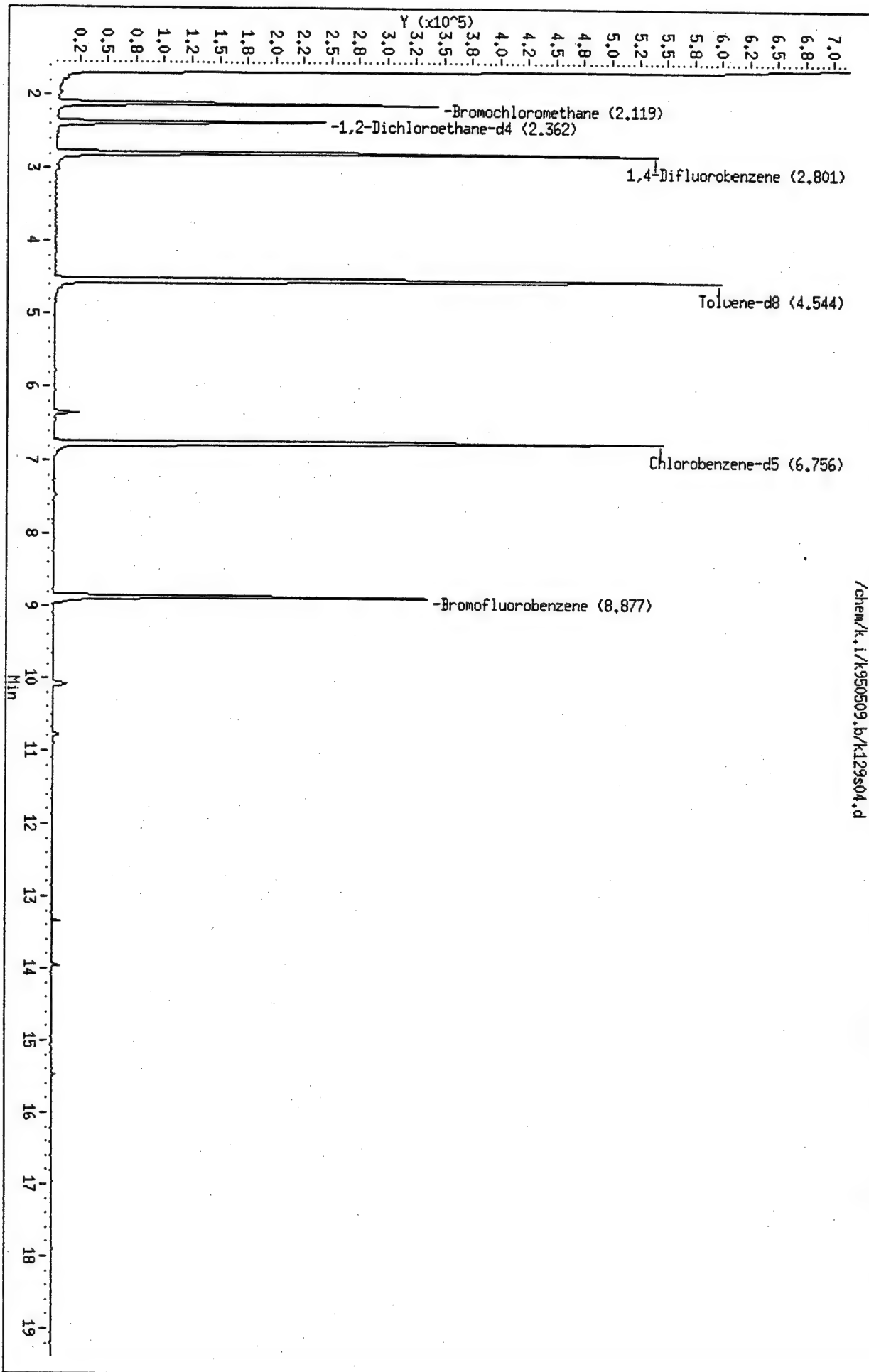
COMPOUND =====	STANDARD =====	RT LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.16
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.80	0.42
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	-0.05

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/K950509.b/K129s04.d  
Date : 09-MAY-1995 14:15  
Client ID:  
Sample Info: 9505164-10H-82405/1X  
Column phase: 30m,hp5ms,0.25u df

Instrument: k.i  
Operator: HLM  
Column diameter: 0.25

Page 4



SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s08.d

Lab Smp Id:

Inj Date : 15-MAY-95 23:13

Operator : LH

Inst ID: h.i

Smp Info : 9505164-10B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 17

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
* 11 1,4-Dichlorobenzene-d4	152.00	4.470	4.477	(1.000)	158645	40	
* 32 Naphthalene-d8	136.00	5.667	5.674	(1.000)	577330	40	
* 48 Acenaphthene-d10	164.00	7.444	7.452	(1.000)	274871	40	
* 65 Phenanthrene-d10	188.00	8.937	8.945	(1.000)	369245	40	
* 76 Chrysene-d12	240.00	11.805	11.813	(1.000)	239761	40	
* 83 Perylene-d12	264.00	14.045	14.053	(1.000)	150488	40	
\$ 23 Nitrobenzene-d5	82.00	4.991	4.999	(0.881)	381143	83	1400
\$ 41 2-Fluorobiphenyl	172.00	6.757	6.765	(0.908)	730821	81	1400
\$ 72 Terphenyl-d14	244.00	10.573	10.580	(0.896)	518326	80	1300
\$ 4 Phenol-d5	99.00	4.186	4.193	(0.936)	546528	89	1500
\$ 3 2-Fluorophenol	112.00	3.486	3.458	(0.780)	410901	74	1200
\$ 61 2,4,6-Tribromophenol	329.70	8.262	8.258	(0.924)	172726	140	2300

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h135s08.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950515.b/hclps.m  
 Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
 Calibration Time: 1526

Level: LOW  
 Sample Type: SOIL

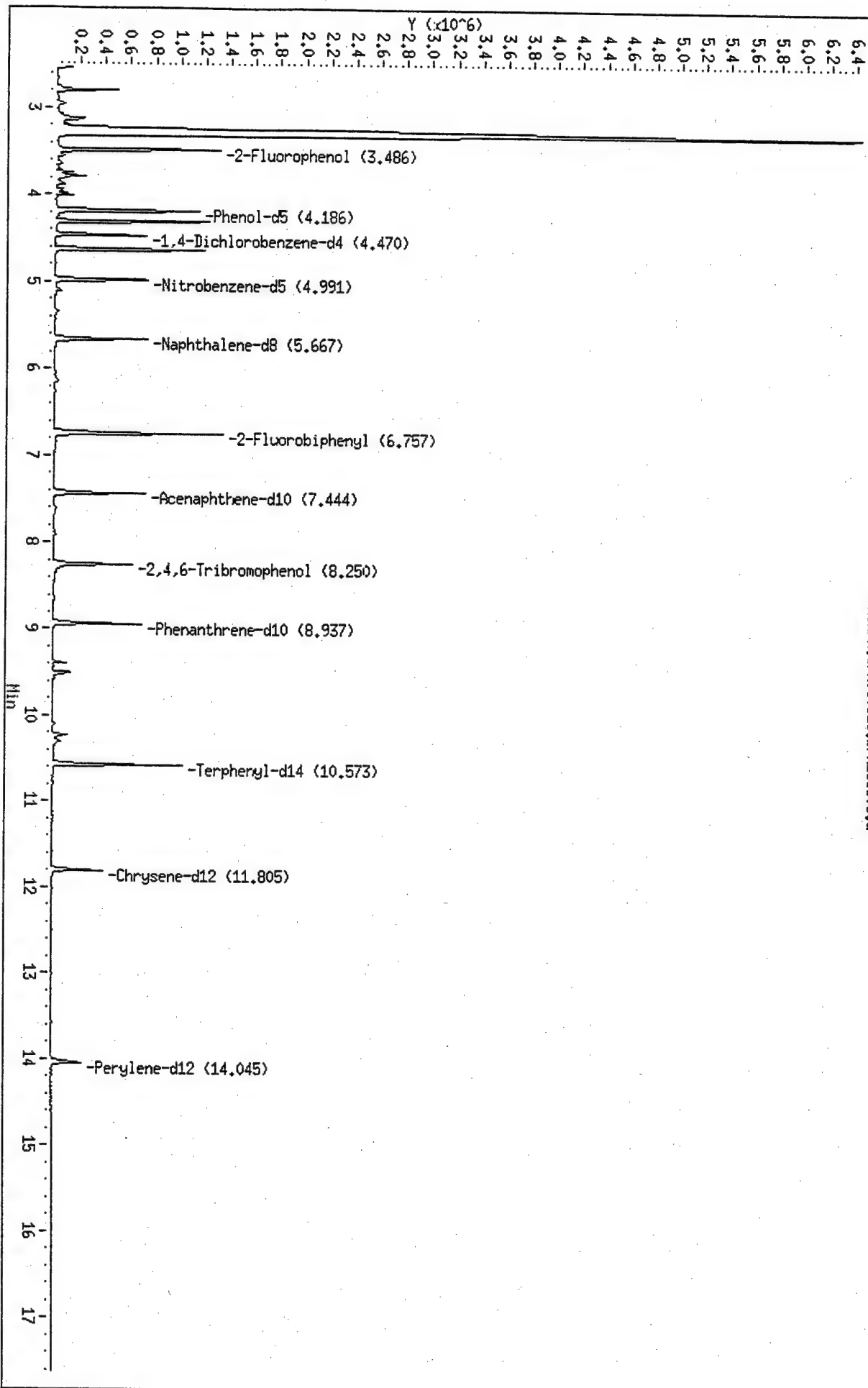
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	158645	28.96
32 Naphthalene-d8	418440	209220	836880	577330	37.97
48 Acenaphthene-d10	198324	99162	396648	274871	38.60
65 Phenanthrene-d10	270386	135193	540772	369245	36.56
76 Chrysene-d12	175926	87963	351852	239761	36.29
83 Perylene-d12	106536	53268	213072	150488	41.26

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.17
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.13
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.10
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.08
76 Chrysene-d12	11.81	11.31	12.31	11.81	-0.06
83 Perylene-d12	14.05	13.55	14.55	14.04	-0.05

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s08.d  
Date : 15-MAY-95 23:13  
Client ID:  
Sample Info: 9505164-10B-82705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-11

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: Equipment Blank

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/03/95 16:50:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: JM Date: 05/05/95	05/05/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/08/95	ND	0.004	mg/L
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 05/09/95	ND	0.01	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/05/95	05/05/95		
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 05/09/95	ND	0.004	mg/L

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-11

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: Equipment Blank

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/03/95 16:50:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/05/95	05/05/95		

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





Certificate of Analysis No. H9-9505164-11

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: Equipment Blank

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/03/95 16:50:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	10	ug/L
2-Butanone	ND	20	ug/L
Carbon Disulfide	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	10	ug/L
2-Chloroethylvinylether	ND	10	ug/L
Chloroform	5	5	ug/L
Chloromethane	ND	10	ug/L
Dibromochloromethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
total-1,2-Dichloroethene	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
2-Hexanone	ND	10	ug/L
Methylene Chloride	ND	5	ug/L
4-Methyl-2-Pentanone	ND	10	ug/L
Styrene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Toluene	ND	5	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Trichlorofluoromethane	ND	5	ug/L
Vinyl Acetate	ND	10	ug/L
Vinyl Chloride	ND	10	ug/L
Xylenes (total)	ND	5	ug/L

METHOD: 8240, Volatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
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HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-11

Operational Tech

SAMPLE ID: Equipment Blank

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/L	100	76	114
Toluene-d8	50 ug/L	100	88	110
4-Bromofluorobenzene	50 ug/L	96	86	115

ANALYZED BY: JC

DATE/TIME: 05/06/95 10:11:00

METHOD: 8240, Volatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS: \*SP\* for Target Compound List

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-11

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: Equipment Blank

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/03/95 16:50:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	25	ug/L
Benzo(g,h,i)Perylene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-11

Operational Tech

SAMPLE ID: Equipment Blank

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno (1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-11

Operational Tech

SAMPLE ID: Equipment Blank

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	74	35	114
2-Fluorobiphenyl	50 ug/L	81	43	116
Terphenyl-d14	50 ug/L	73	33	141
Phenol-d5	75 ug/L	51	10	110
2-Fluorophenol	75 ug/L	55	21	110
2,4,6-Tribromophenol	75 ug/L	95	10	123

ANALYZED BY: LH

DATE/TIME: 05/15/95 20:20:00

EXTRACTED BY: RN

DATE/TIME: 05/09/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS: \*SP\* for Target Compound List

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/1.i/1950505.b/l125s28.d  
Report Date: 06-May-1995 13:59

Page 1

SPL Labs

Volatiles by 624/8240  
Data file : /chem/1.i/1950505.b/l125s28.d  
Smp Id:   
Inj Date : 06-MAY-1995 10:11  
Operator : JC  
P Info : 9505164-11A-8240W/1X  
isc Info : L125W1/L125B02/L124CW1  
Comment :  
Method : /chem/1.i/1950505.b/lvoclpw.m  
Inj Date : 06-May-1995 13:46 jimmy  
Cal Date : 06-MAY-1995 01:18  
als bottle: 38  
Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10  
Inst ID: 1.i  
Quant Type: ISTD  
Cal File: l125cw1.d  
Compound Sublist: normal.sub

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	---	---	---	---	---	-----	-----	
13 Methylene Chloride	84.00	3.245	3.244	(0.621)	6874	20	4 (a)	
24 Chloroform	83.00	5.242	5.241	(1.003)	15995	25	5	
Bromochloromethane	128.00	5.224	5.223	(1.000)	47881	250		
1,4-Difluorobenzene	114.00	6.935	6.926	(1.000)	247347	250		
50 Chlorobenzene-d5	117.00	11.107	11.097	(1.000)	198370	250		
1,2-Dichloroethane-d4	102.00	5.999	5.990	(1.148)	19269	250	50	
Toluene-d8	98.00	9.155	9.154	(0.824)	272682	250	50	
61 Bromofluorobenzene	95.00	12.783	12.773	(1.151)	97547	240	48	

Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation (BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: l.i  
Lab File ID: l125s28.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/l.i/1950505.b/lvoclpw.m  
Misc Info: L125W1/L125B02/L124CW1

Calibration Date: 05/06/95  
Calibration Time: 0118  
Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	48316	24158	96632	47881	-0.90
32 1,4-Difluorobenzene	248535	124268	497070	247347	-0.48
50 Chlorobenzene-d5	204023	102012	408046	198370	-2.77

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.22	0.02
32 1,4-Difluorobenzene	6.93	6.43	7.43	6.94	0.14
50 Chlorobenzene-d5	11.10	10.60	11.60	11.11	0.09

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950505.b/1125s28.d

Date : 06-MAY-1995 10:11

Client ID:

Sample Info: 9505164-11A-8240M/1X

Purge Volume: 5.0

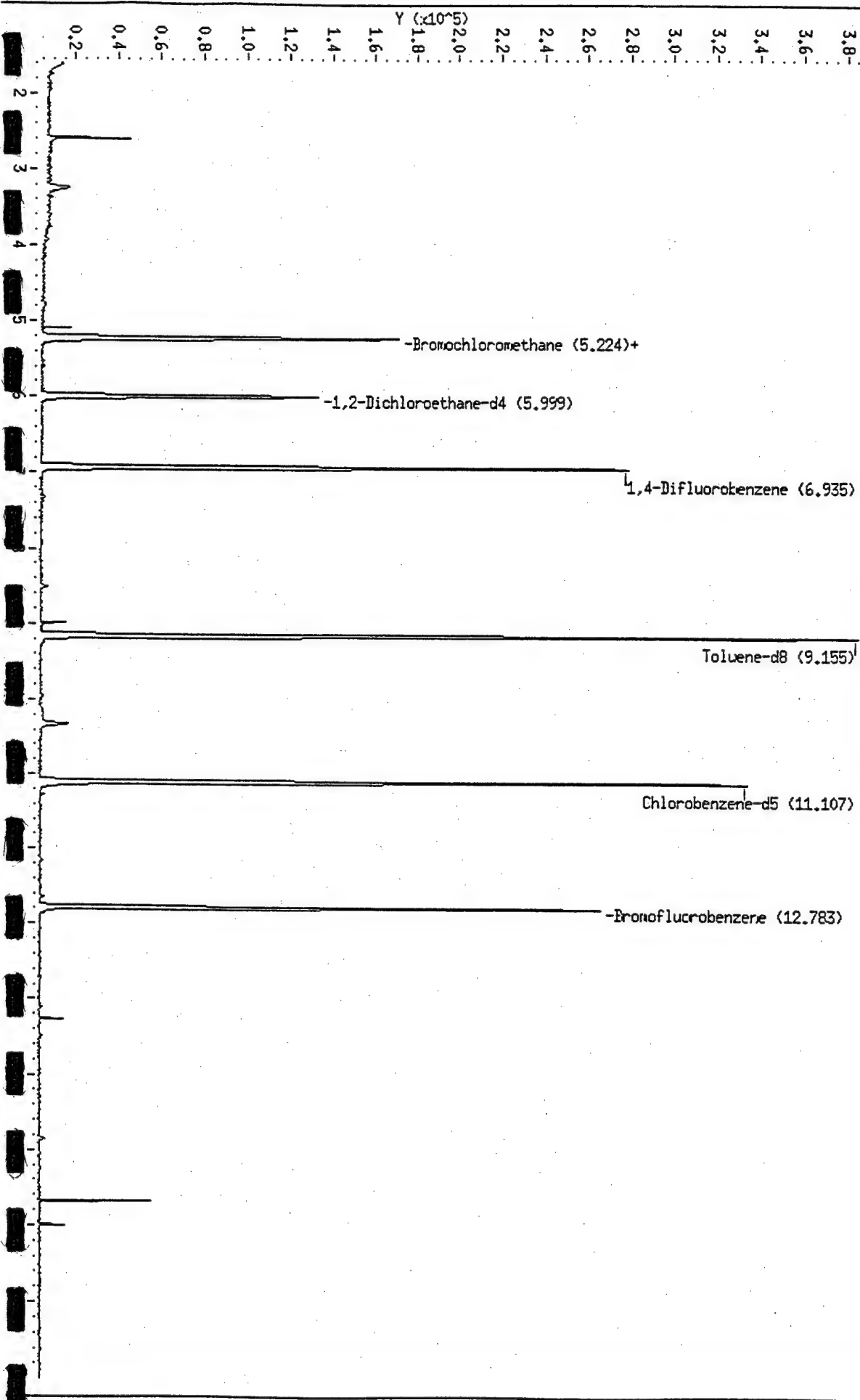
Column phase: 30m,hp5ms,0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950505.b/1125s28.d





Data File: /chem/1.i/1950505.b/1125s28.d

Date: 06-MAY-1995 10:11

Client ID:

Instrument: 1.i

Sample Info: 9505164-11A-8240W/1X

Purge Volume: 5.0

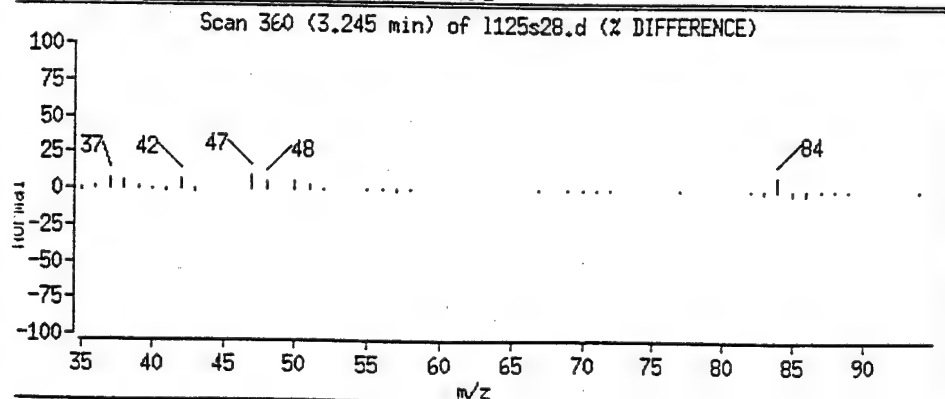
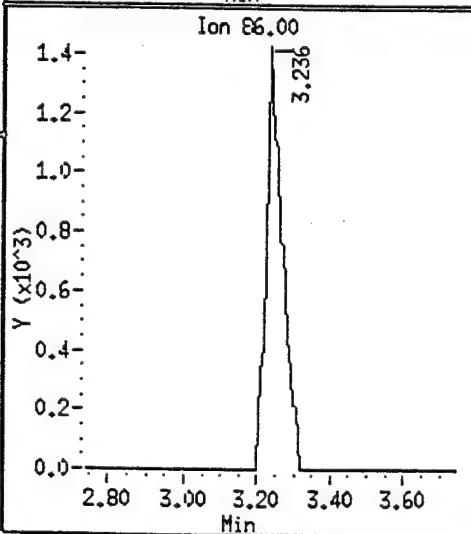
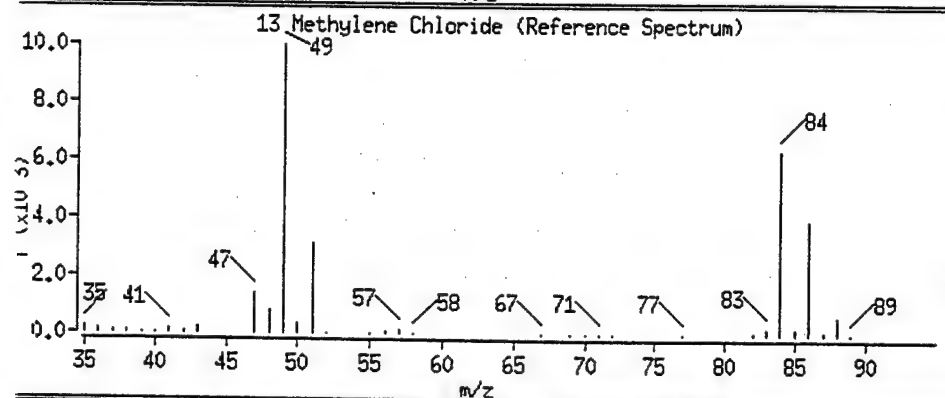
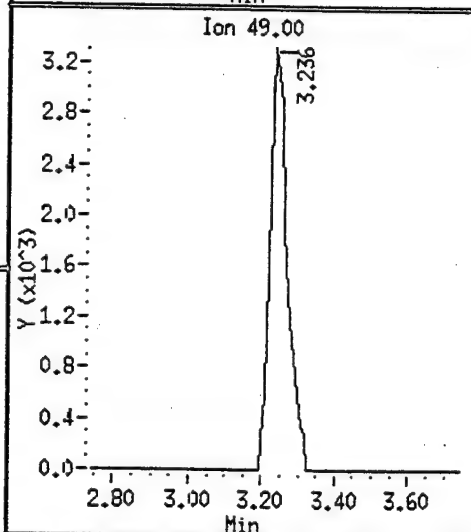
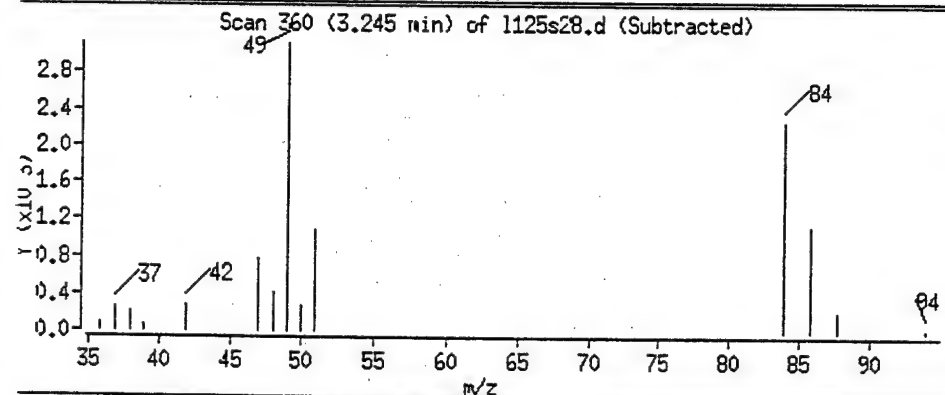
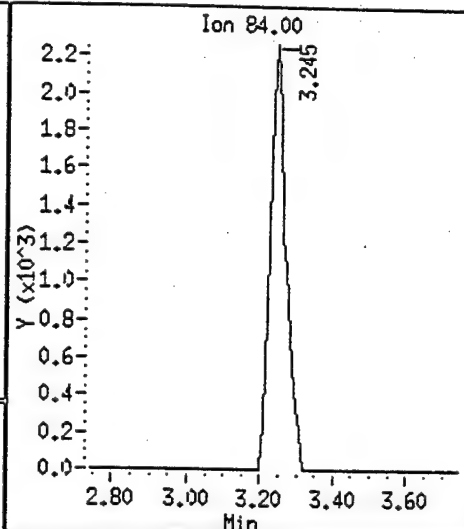
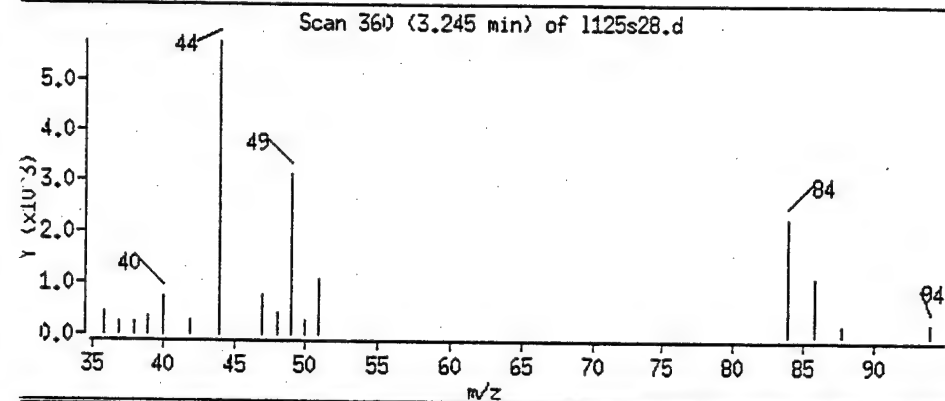
Operator: JC

Column phase: 30m, hp5ms, 0.25u df

Column diameter: 0.25

Page 5

13 Methylene Chloride



Data File: /chem/1.i/1950505.b/1125s28.d

Page 6

Date: 06-MAY-1995 10:11

Client ID:

Instrument: 1.i

Sample Info: 9505164-11A-8240W/1X

Purge Volume: 5.0

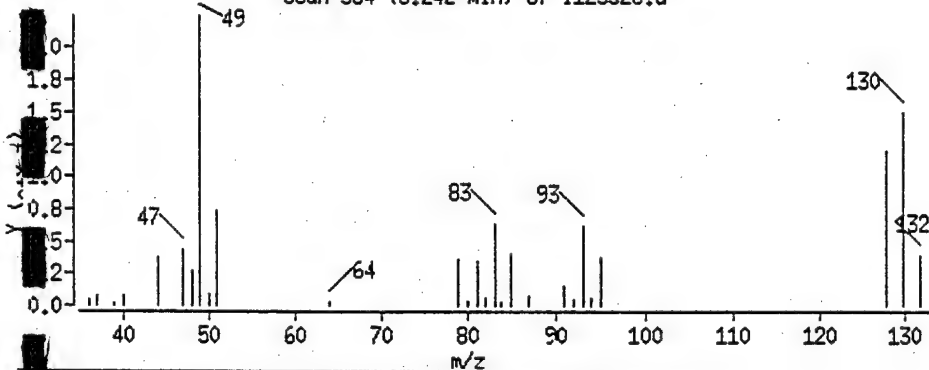
Operator: JC

Column phase: 30m,hp5ms,0.25u df

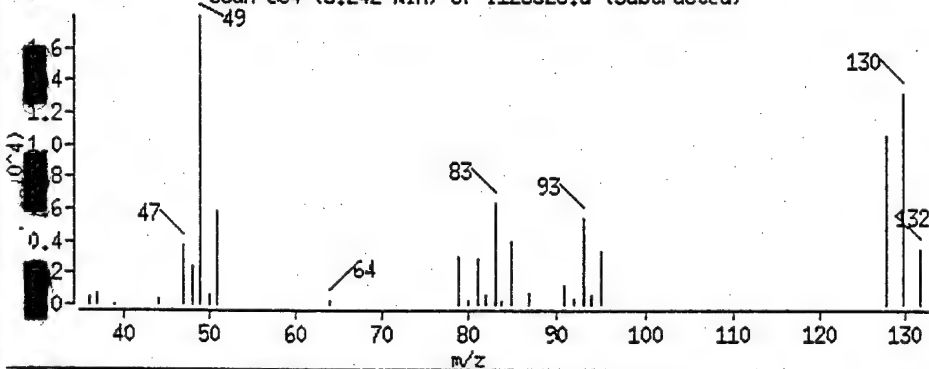
Column diameter: 0.25

Chloroform

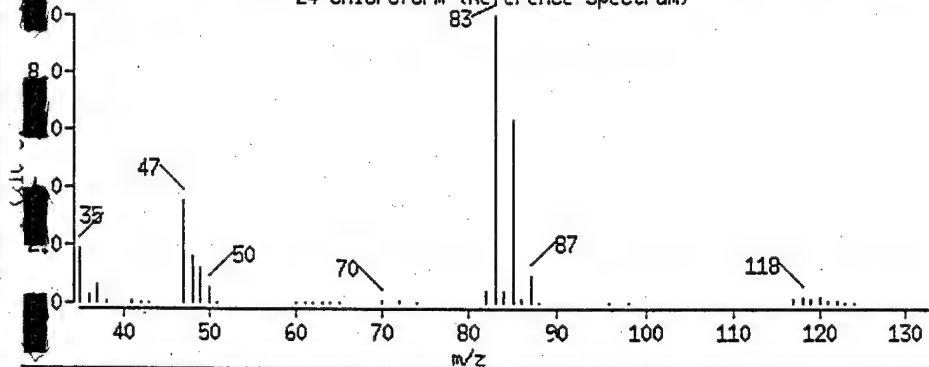
Scan 584 (5.242 min) of 1125s28.d



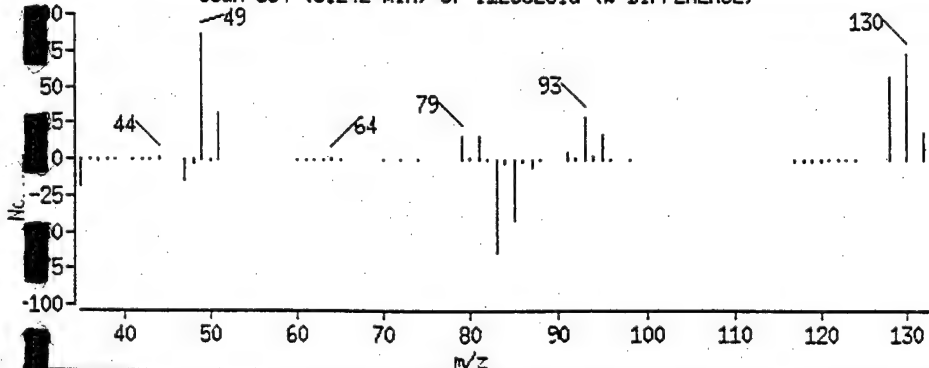
Scan 584 (5.242 min) of 1125s28.d (Subtracted)



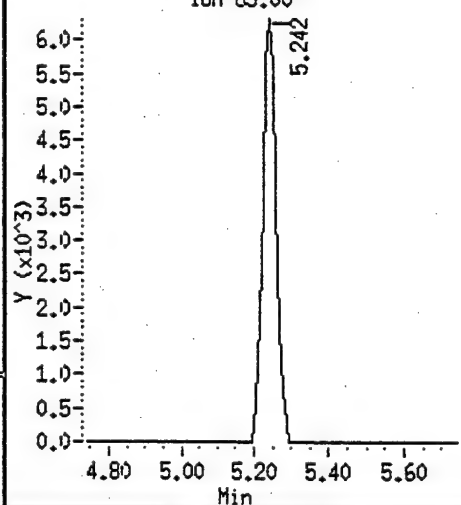
24 Chloroform (Reference Spectrum)



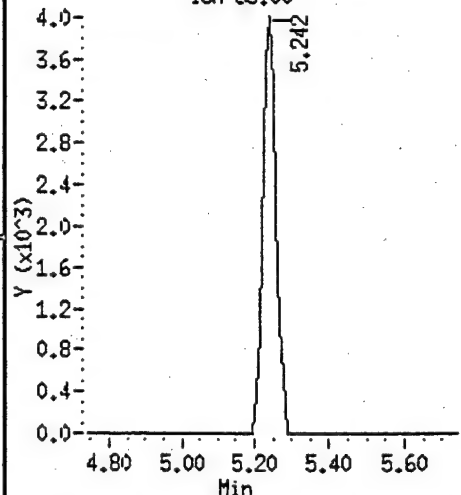
Scan 584 (5.242 min) of 1125s28.d (% DIFFERENCE)



Ion 83.00



Ion 85.00



SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s01.d

Lab Smp Id:

Inj Date : 15-MAY-1995 20:20

Operator : LH

Inst ID: h.i

Smp Info : 9505164-11B-8270W/1X

Misc Info : E129C1/J129B01/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclpw.m

Meth Date : 16-May-1995 11:45 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 10

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Compound Sublist: 8270.sub

Compounds	QUANT SIG				RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT		ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	==	=====	=====	-----	-----	-----
* 11 1,4-Dichlorobenzene-d4	152.00	4.470	4.477	(1.000)	143516	40	
* 32 Naphthalene-d8	136.00	5.679	5.674	(1.000)	503480	40	
* 48 Acenaphthene-d10	164.00	7.444	7.452	(1.000)	220433	40	
* 65 Phenanthrene-d10	188.00	8.938	8.945	(1.000)	335282	40	
* 76 Chrysene-d12	240.00	11.805	11.813	(1.000)	243873	40	
* 83 Perylene-d12	264.00	14.033	14.053	(1.000)	100492	40	
\$ 23 Nitrobenzene-d5	82.00	4.991	4.999	(0.879)	297690	74	37
\$ 41 2-Fluorobiphenyl	172.00	6.757	6.765	(0.908)	586740	81	41
\$ 72 Terphenyl-d14	244.00	10.573	10.580	(0.896)	480921	73	36
\$ 4 Phenol-d5	99.00	4.186	4.193	(0.936)	423296	77	38
\$ 3 2-Fluorophenol	112.00	3.463	3.458	(0.775)	415922	83	41
\$ 61 2,4,6-Tribromophenol	329.70	8.262	8.258	(0.924)	164231	140	71

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s01.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclpw.m  
Misc Info: E129C1/H129B01/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: WATER

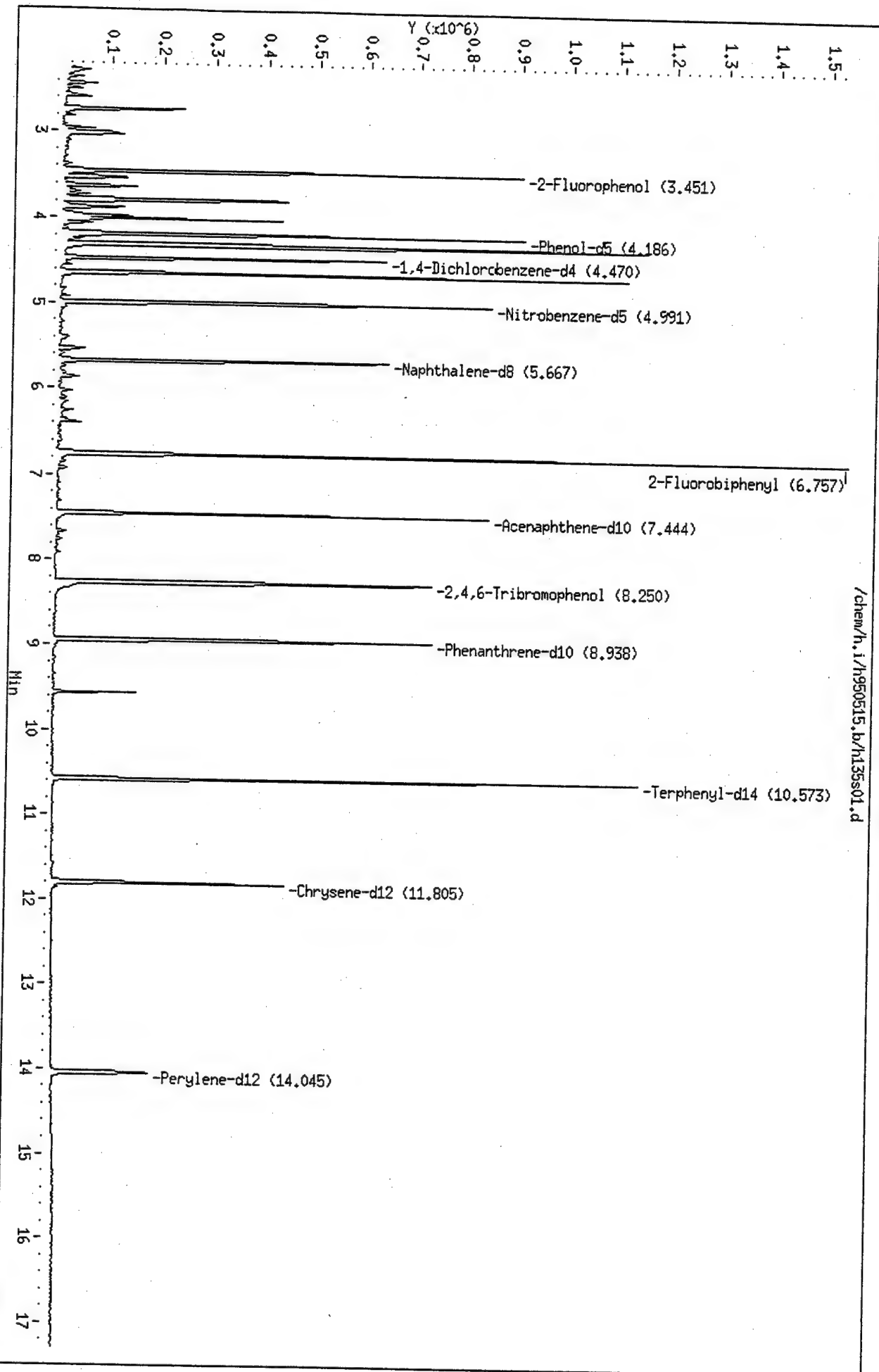
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	143516	16.66
32 Naphthalene-d8	418440	209220	836880	503480	20.32
48 Acenaphthene-d10	198324	99162	396648	220433	11.15
65 Phenanthrene-d10	270386	135193	540772	335282	24.00
76 Chrysene-d12	175926	87963	351852	243873	38.62
83 Perylene-d12	106536	53268	213072	100492	-5.67

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.17
32 Naphthalene-d8	5.67	5.17	6.17	5.68	0.08
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.10
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.08
76 Chrysene-d12	11.81	11.31	12.31	11.81	-0.06
83 Perylene-d12	14.05	13.55	14.55	14.03	-0.14

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s01.d  
Date : 15-MAY-1995 20:20  
Client ID:  
Sample Info: 9505164-11B-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-12

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5 MS

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95			
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	102	8	mg/Kg	
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	11	1	mg/Kg	
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95			
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95			
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	6.5	0.4	mg/Kg	

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-12

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5 MS

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	47	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	41	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	44	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	43	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	44	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-12

Operational Tech

SAMPLE ID: 026-001BH 9-9.5 MS

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	94	70	121
Toluene-d8	50 ug/Kg	98	84	138
4-Bromofluorobenzene	50 ug/Kg	100	59	113

ANALYZED BY: HLW

DATE/TIME: 05/09/95 14:43:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-12

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5 MS

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	1200	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	330	ug/Kg
Benzo(g,h,i)Perylene	ND	1600	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	2100	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	1500	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	1100	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	330	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	ND	800	ug/Kg
2,6-Dinitrotoluene	1600	330	ug/Kg
	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-12

Operational Tech

SAMPLE ID: 026-001BH 9-9.5 MS

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	3300	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	1500	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	2400	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	1200	330	ug/Kg
Pyrene	1100	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	1200	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-12

Operational Tech

SAMPLE ID: 026-001BH 9-9.5 MS

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	82	23	120
2-Fluorobiphenyl	1600 ug/Kg	81	30	115
Terphenyl-d14	1600 ug/Kg	85	18	137
Phenol-d5	2500 ug/Kg	54	24	113
2-Fluorophenol	2500 ug/Kg	53	25	121
2,4,6-Tribromophenol	2500 ug/Kg	103	19	122

ANALYZED BY: LH

DATE/TIME: 05/15/95 23:38:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/k.i/k950509.b/k129s05.d  
Report Date: 12-May-1995 10:49

Page 1

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129s05.d

Lab Smp Id: 9505164-12A-8240S/1X

Inj Date : 09-MAY-1995 14:43

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-12A-8240S/1X

Misc Info : K129S1/K129B02/K129CS2

Comment :

Method : /chem/k.i/k950509.b/kvoclp.s.m

Meth Date : 12-May-1995 10:45 hillery Quant Type: ISTD

Cal Date : 09-MAY-1995 11:08 Cal File: k129cs2.d

Als bottle: 18

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: lcs.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL	
	----	--	-----	-----	-----	( ng)	(ug/Kg)	
* 20 Bromochloromethane	128.00	2.120	2.123	(1.000)	82155	250		
* 31 1,4-Difluorobenzene	114.00	2.801	2.789	(1.000)	510371	250		
* 51 Chlorobenzene-d5	117.00	6.756	6.759	(1.000)	376686	250		
\$ 23 1,2-Dichloroethane-d4	102.00	2.377	2.365	(1.122)	34195	240	47	
\$ 40 Toluene-d8	98.00	4.544	4.532	(0.673)	573739	250	49	
\$ 61 Bromofluorobenzene	95.00	8.862	8.865	(1.312)	206327	250	50	
10 1,1-Dichloroethene	96.00	1.620	1.623	(0.764)	137856	220	44	
27 Benzene	78.00	2.559	2.547	(0.913)	702129	240	47	
34 Trichloroethene	130.00	3.089	3.092	(1.103)	151747	220	44	
43 Toluene	92.00	4.635	4.638	(0.686)	382802	220	43	
52 Chlorobenzene	112.00	6.817	6.805	(1.009)	347138	200	41	

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129s05.d  
Lab Smp Id: 9505164-12A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Misc Info: K129S1/K129B02/K129CS2

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

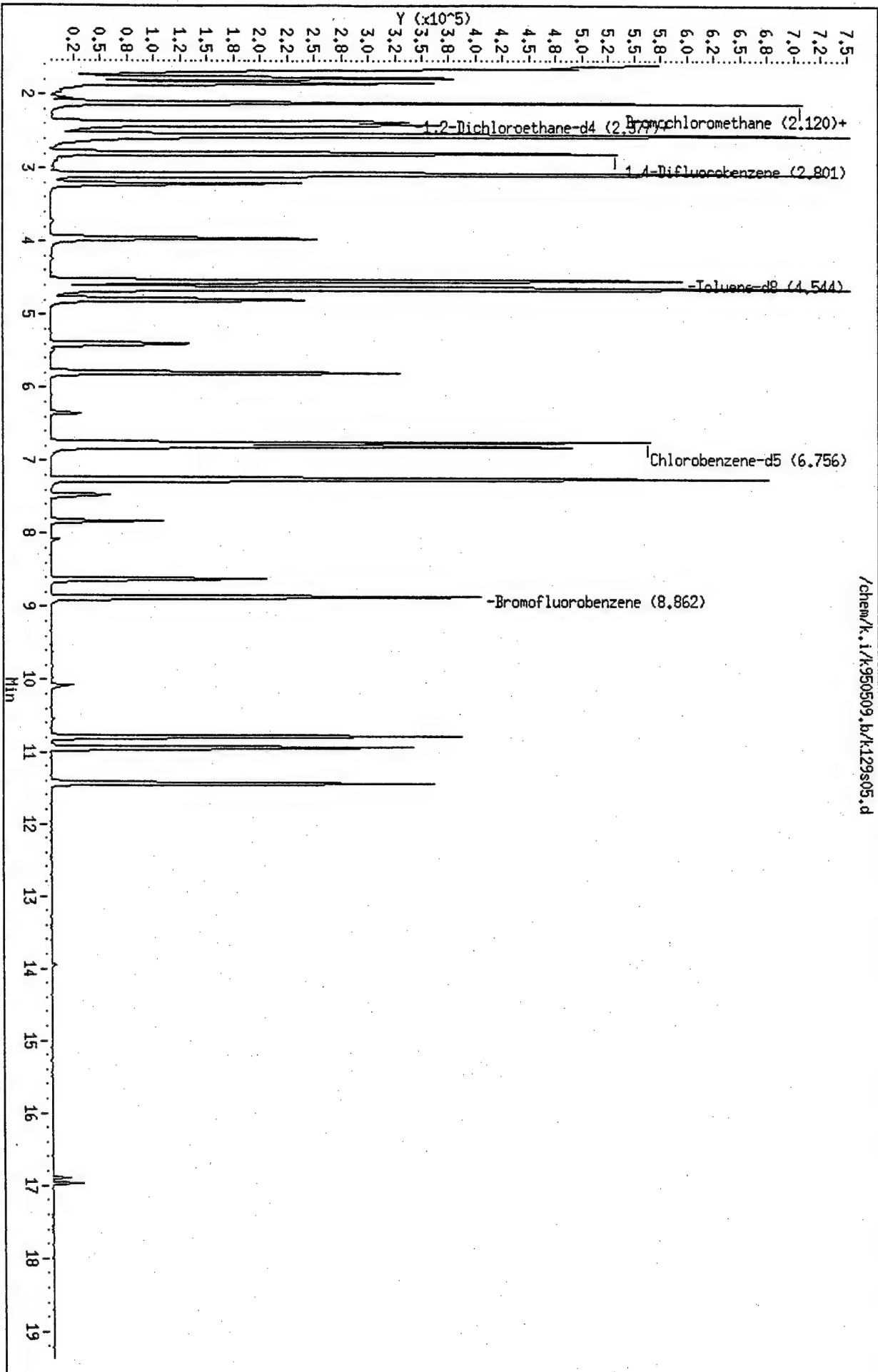
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	82155	-4.99
31 1,4-Difluorobenzene	552052	276026	1104104	510371	-7.55
51 Chlorobenzene-d5	389031	194516	778062	376686	-3.17

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.15
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.80	0.43
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	-0.05

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950509.b/k129s05.d  
 Date : 09-MAY-1995 14:43  
 Client ID:  
 Sample Info: 9505164-129-82405/1X  
 Column phase: 30m,hp5ms,0.25u df

Instrument: k.i  
 Operator: HLM  
 Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s09.d

Lab Smp Id:

Inj Date : 15-MAY-1995 23:38

Operator : LH

Inst ID: h.i

Smp Info : 9505164-12B-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 18

QC Sample: MS

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	(ug/Kg)
-----	----	----	--	-----	-----	-----	-----	-----
5 Phenol		94.00	4.208	4.205	(0.942)	423934	71	1200
9 2-Chlorophenol		128.00	4.327	4.323	(0.968)	414164	88	1500
12 1,4-Dichlorobenzene		146.00	4.493	4.489	(1.005)	348024	68	1100
21 N-Nitroso-di-n-propylamine		70.00	4.860	4.869	(1.087)	202402	90	1500
31 1,2,4-Trichlorobenzene		180.00	5.630	5.639	(0.994)	336571	75	1200
36 4-Chloro-3-methylphenol		107.00	6.246	6.255	(1.102)	482624	120	2100
49 Acenaphthene		153.00	7.479	7.476	(1.005)	561108	71	1200
51 4-Nitrophenol		109.00	7.621	7.618	(1.024)	177479	200	3300 (QR)
53 2,4-Dinitrotoluene		165.00	7.668	7.665	(1.030)	289992	96	1600 (QRM)
64 Pentachlorophenol		265.50	8.830	8.827	(0.987)	249317	140	2400
71 Pyrene		202.00	10.418	10.414	(0.883)	696251	64	1100
* 11 1,4-Dichlorobenzene-d4		152.00	4.469	4.477	(1.000)	139872	40	
* 32 Naphthalene-d8		136.00	5.666	5.674	(1.000)	569561	40	
* 48 Acenaphthene-d10		164.00	7.443	7.452	(1.000)	278810	40	
* 65 Phenanthrene-d10		188.00	8.948	8.945	(1.000)	408157	40	
* 76 Chrysene-d12		240.00	11.804	11.813	(1.000)	273688	40	
* 83 Perylene-d12		264.00	14.044	14.053	(1.000)	180364	40	
\$ 23 Nitrobenzene-d5		82.00	4.990	4.999	(0.881)	356107	79	1300
\$ 41 2-Fluorobiphenyl		172.00	6.756	6.765	(0.908)	707580	78	1300
\$ 72 Terphenyl-d14		244.00	10.584	10.580	(0.897)	599365	81	1400
\$ 4 Phenol-d5		99.00	4.196	4.193	(0.939)	439408	82	1400 (Q)
\$ 3 2-Fluorophenol		112.00	3.485	3.458	(0.780)	392620	80	1300
\$ 61 2,4,6-Tribromophenol		329.70	8.261	8.258	(0.923)	215920	150	2600

QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s09.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	139872	13.70
32 Naphthalene-d8	418440	209220	836880	569561	36.12
48 Acenaphthene-d10	198324	99162	396648	278810	40.58
65 Phenanthrene-d10	270386	135193	540772	408157	50.95
76 Chrysene-d12	175926	87963	351852	273688	55.57
83 Perylene-d12	106536	53268	213072	180364	69.30

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.19
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.15
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.12
65 Phenanthrene-d10	8.95	8.45	9.45	8.95	0.04
76 Chrysene-d12	11.81	11.31	12.31	11.80	-0.07
83 Perylene-d12	14.05	13.55	14.55	14.04	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/h.i/h950515.b/h135s09.d

Date : 15-MAY-1995 23:38

Client ID:

Sample Info: 9505164-12B-82705/1X

Volume Injected (uL): 2.0

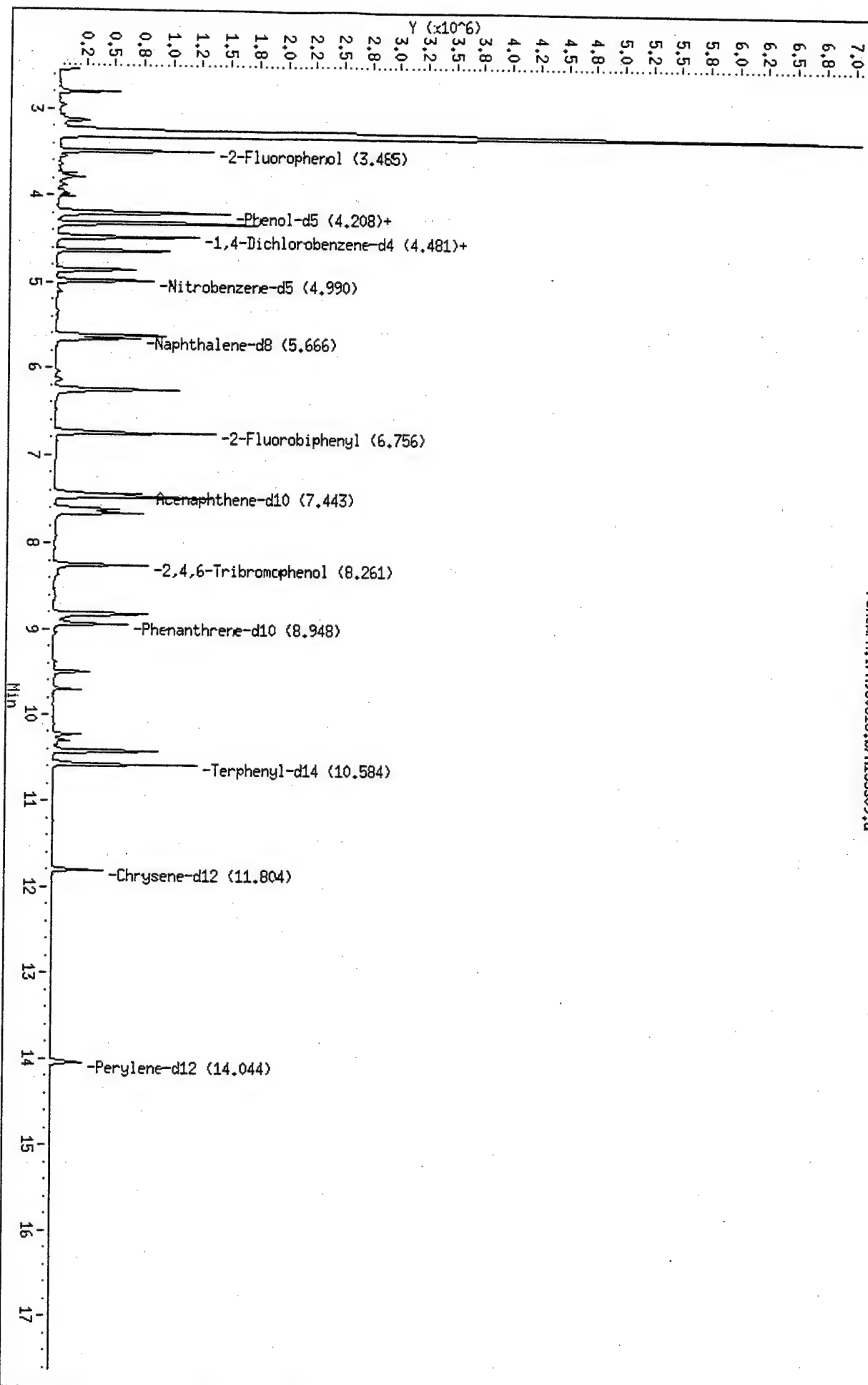
Column phase:

Instrument: h.i

Operator: LH

Column diameter: 0.25

/chem/h.i/h950515.b/h135s09.d





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-13

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5 MSD

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Sonication extraction METHOD 3550 Analyzed by: JK Date: 05/12/95	05/12/95		
Cadmium, Total METHOD 6010 *** Analyzed by: JM Date: 05/17/95	101	8	mg/Kg
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 05/18/95	12	1	mg/Kg
Acid Digestion - Solids, GFAA METHOD 3050 *** Analyzed by: MM Date: 05/12/95	05/12/95		
Acid Digestion - Solids, ICP METHOD 3050 Analyzed by: MM Date: 05/12/95	05/12/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/15/95	6.5	0.4	mg/Kg

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
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Certificate of Analysis No. H9-9505164-13

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5 MSD

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

#### ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acetone	ND	100	ug/Kg
Benzene	49	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg
Bromomethane	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
Chlorobenzene	43	5	ug/Kg
Chloroethane	ND	10	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Chloroform	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
1,1-Dichloroethene	46	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
total-1,2-Dichloroethene	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Methylene Chloride	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Toluene	45	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
Trichloroethene	46	5	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Xylenes (total)	ND	5	ug/Kg

METHOD: 8240, Volatile Organics - Soil  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-13

Operational Tech

SAMPLE ID: 026-001BH 9-9.5 MSD

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50 ug/Kg	102	70	121
Toluene-d8	50 ug/Kg	98	84	138
4-Bromofluorobenzene	50 ug/Kg	100	59	113

ANALYZED BY: HLW

DATE/TIME: 05/09/95 15:09:00

METHOD: 8240, Volatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-13

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

05/22/95

PROJECT: Duluth ANGB/DULUTH SI  
SITE: IRP Site 26  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001BH 9-9.5 MSD

PROJECT NO: 1315-197  
MATRIX: SOIL  
DATE SAMPLED: 05/03/95 13:35:00  
DATE RECEIVED: 05/04/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	1200	330	ug/Kg
Acenaphthylene	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Benzo(a)Anthracene	ND	330	ug/Kg
Benzo(b)Fluoranthene	ND	330	ug/Kg
Benzo(k)Fluoranthene	ND	330	ug/Kg
Benzo(a)Pyrene	ND	330	ug/Kg
Benzoic Acid	ND	330	ug/Kg
Benzo(g,h,i)Perylene	ND	1600	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
4-Bromophenylphenyl ether	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
di-n-Butyl phthalate	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
bis(2-Chloroethoxy)Methane	ND	330	ug/Kg
bis(2-Chloroethyl)Ether	ND	330	ug/Kg
bis(2-Chloroisopropyl)Ether	ND	330	ug/Kg
4-Chloro-3-Methylphenol	2200	330	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Chlorophenol	1600	330	ug/Kg
4-Chlorophenylphenyl ether	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
Dibenz(a,h)Anthracene	ND	330	ug/Kg
Dibenzofuran	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
3,3'-Dichlorobenzidine	1200	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Dimethyl Phthalate	ND	330	ug/Kg
4,6-Dinitro-2-Methylphenol	ND	800	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
2,4-Dinitrotoluene	1600	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-13

Operational Tech

SAMPLE ID: 026-001BH 9-9.5 MSD

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	330	ug/Kg
bis(2-Ethylhexyl) Phthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
Indeno(1,2,3-cd) Pyrene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
Nitrobenzene	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
4-Nitrophenol	3700	800	ug/Kg
N-Nitrosodiphenylamine (1)	ND	330	ug/Kg
N-Nitroso-Di-n-Propylamine	1700	330	ug/Kg
Di-n-Octyl Phthalate	ND	330	ug/Kg
Pentachlorophenol	2400	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Phenol	1200	330	ug/Kg
Pyrene	1000	330	ug/Kg
Pyridine	ND	330	ug/Kg
1,2,4-Trichlorobenzene	1400	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg

METHOD: 8270, Semivolatile Organics - Soil  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505164-13

Operational Tech

SAMPLE ID: 026-001BH 9-9.5 MSD

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	1600 ug/Kg	90	23	120
2-Fluorobiphenyl	1600 ug/Kg	88	30	115
Terphenyl-d14	1600 ug/Kg	83	18	137
Phenol-d5	2500 ug/Kg	60	24	113
2-Fluorophenol	2500 ug/Kg	58	25	121
2,4,6-Tribromophenol	2500 ug/Kg	110	19	122

ANALYZED BY: LH

DATE/TIME: 05/16/95 00:03:00

EXTRACTED BY: JK

DATE/TIME: 05/12/95

METHOD: 8270, Semivolatile Organics - Soil

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129s06.d

Lab Smp Id: 9505164-13A-8240S/1X

Inj Date : 09-MAY-1995 15:09

Operator : HLW

Inst ID: k.i

Smp Info : 9505164-13A-8240S/1X

Misc Info : K129S1/K129B02/K129CS2

Comment :

Method : /chem/k.i/k950509.b/kvoclp.s.m

Meth Date : 12-May-1995 10:45 hillery

Quant Type: ISTD

Cal Date : 09-MAY-1995 11:08

Cal File: k129cs2.d

Als bottle: 19

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: lcs.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.108	2.123	(1.000)	83258	250	
* 31 1,4-Difluorobenzene	114.00	2.790	2.789	(1.000)	527743	250	
* 51 Chlorobenzene-d5	117.00	6.760	6.759	(1.000)	393747	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.366	2.365	(1.122)	37273	250	51
\$ 40 Toluene-d8	98.00	4.532	4.532	(0.670)	595871	240	49
\$ 61 Bromofluorobenzene	95.00	8.866	8.865	(1.312)	214842	250	50
10 1,1-Dichloroethene	96.00	1.608	1.623	(0.763)	145439	230	46
27 Benzene	78.00	2.547	2.547	(0.913)	759113	250	49
34 Trichloroethene	130.00	3.093	3.092	(1.109)	161517	230	46
43 Toluene	92.00	4.638	4.638	(0.686)	416967	220	45
52 Chlorobenzene	112.00	6.805	6.805	(1.007)	376794	210	43



SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k129s06.d  
Lab Smp Id: 9505164-13A-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Misc Info: K129S1/K129B02/K129CS2

Calibration Date: 05/09/95  
Calibration Time: 1108

Level: LOW  
Sample Type: SOIL

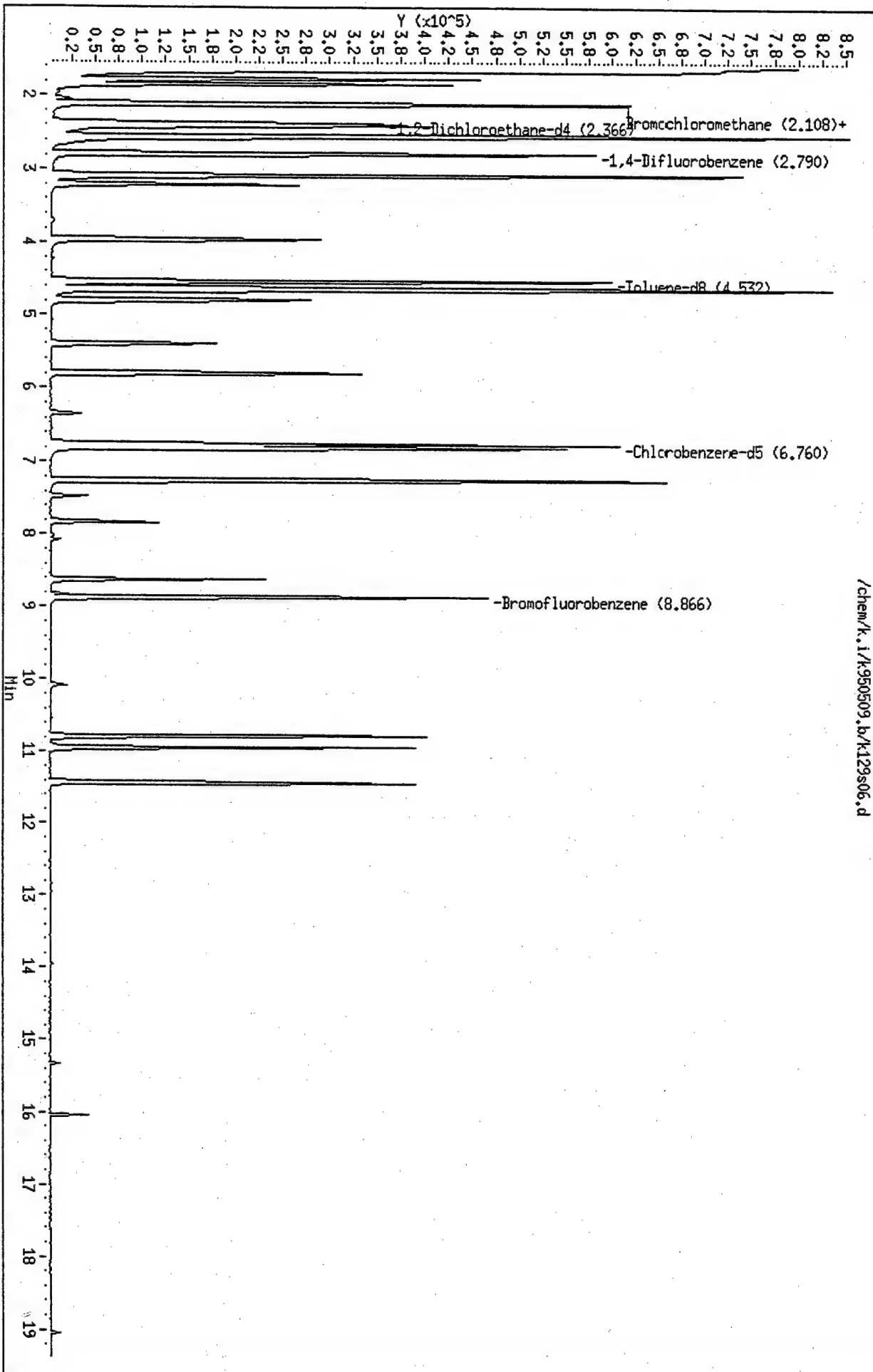
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	83258	-3.72
31 1,4-Difluorobenzene	552052	276026	1104104	527743	-4.40
51 Chlorobenzene-d5	389031	194516	778062	393747	1.21

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.11	-0.69
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.02
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950509.b/k129s06.d  
 Date : 09-MAY-1995 15:09  
 Client ID:  
 Sample Info: 9505164-13a-82405/1X  
 Column phase: 30m,hp5ms,0.25u df

Instrument: k.1  
 Operator: HLM  
 Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135s10.d  
Lab Smp Id:  
Inj Date : 16-MAY-1995 00:03  
Operator : LH  
Smp Info : 9505164-13B-8270S/1X  
Misc Info : E132S1/H132B02/H135CC1  
Comment :  
Method : /chem/h.i/h950515.b/hclps.m  
Meth Date : 16-May-1995 11:41 liping  
Cal Date : 15-MAY-1995 15:26  
Als bottle: 19  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: h.i

Quant Type: ISTD  
Cal File: h135cc1.d  
QC Sample: MS

Compound Sublist: 8270.sub

Compounds	QUANT SIG				CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
	=====	==	=====	=====	=====	( ng)	(ug/Kg)
5 Phenol	94.00	4.208	4.205	(0.942)	439538	75	1200
9 2-Chlorophenol	128.00	4.327	4.323	(0.968)	442721	96	1600
12 1,4-Dichlorobenzene	146.00	4.493	4.489	(1.005)	365899	73	1200
21 N-Nitroso-di-n-propylamine	70.00	4.860	4.869	(1.087)	224853	100	1700
31 1,2,4-Trichlorobenzene	180.00	5.630	5.639	(0.994)	368386	81	1400
36 4-Chloro-3-methylphenol	107.00	6.247	6.255	(1.102)	518715	130	2200
49 Acenaphthene	153.00	7.479	7.476	(1.005)	599464	74	1200
51 4-Nitrophenol	109.00	7.621	7.618	(1.024)	204815	220	3700 (QR)
53 2,4-Dinitrotoluene	165.00	7.669	7.665	(1.030)	290925	93	1600 (QR)
64 Pentachlorophenol	265.50	8.830	8.827	(0.987)	263451	140	2400
71 Pyrene	202.00	10.430	10.414	(0.884)	765694	62	1000
* 11 1,4-Dichlorobenzene-d4	152.00	4.469	4.477	(1.000)	137164	40	
* 32 Naphthalene-d8	136.00	5.666	5.674	(1.000)	577477	40	
* 48 Acenaphthene-d10	164.00	7.444	7.452	(1.000)	287643	40	
* 65 Phenanthrene-d10	188.00	8.949	8.945	(1.000)	429462	40	
* 76 Chrysene-d12	240.00	11.805	11.813	(1.000)	309797	40	
* 83 Perylene-d12	264.00	14.044	14.053	(1.000)	210382	40	
\$ 23 Nitrobenzene-d5	82.00	4.991	4.999	(0.881)	393820	86	1400
\$ 41 2-Fluorobiphenyl	172.00	6.756	6.765	(0.908)	792350	84	1400
\$ 72 Terphenyl-d14	244.00	10.584	10.580	(0.897)	663257	79	1300
\$ 4 Phenol-d5	99.00	4.197	4.193	(0.939)	478045	90	1500 (Q)
\$ 3 2-Fluorophenol	112.00	3.486	3.458	(0.780)	421261	88	1500
\$ 61 2,4,6-Tribromophenol	329.70	8.261	8.258	(0.923)	242605	160	2700

QC Flag Legend

Q - Qualifier signal failed the ratio test.  
R - Spike/Surrogate failed recovery limits.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h135s10.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
Calibration Time: 1526

Level: LOW  
Sample Type: SOIL

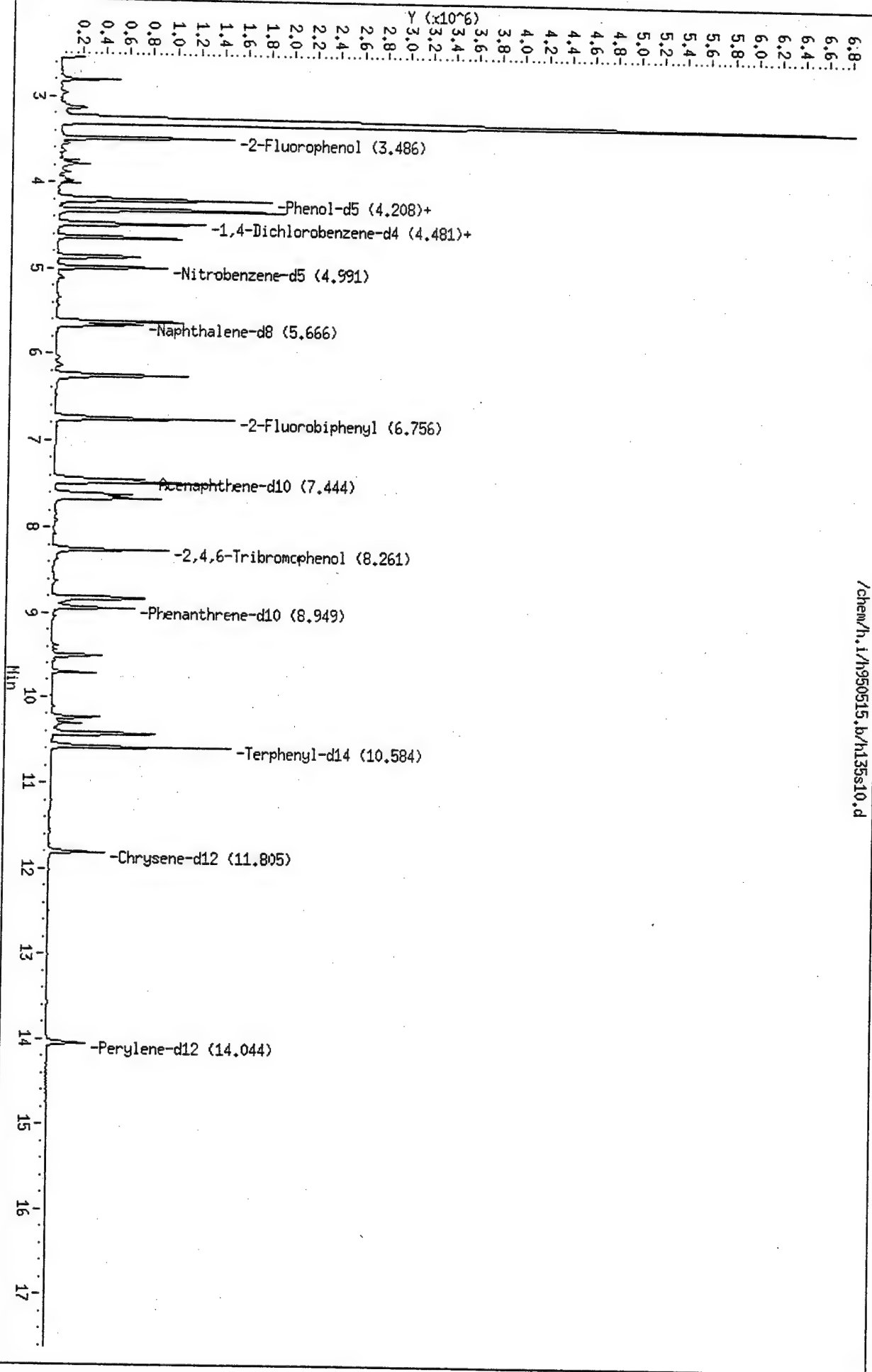
COMPOUND =====	STANDARD =====	AREA LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
11 1,4-Dichlorobenzene-	123023	61512	246046	137164	11.49
32 Naphthalene-d8	418440	209220	836880	577477	38.01
48 Acenaphthene-d10	198324	99162	396648	287643	45.04
65 Phenanthrene-d10	270386	135193	540772	429462	58.83
76 Chrysene-d12	175926	87963	351852	309797	76.10
83 Perylene-d12	106536	53268	213072	210382	97.48

COMPOUND =====	STANDARD =====	RT LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.19
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.15
48 Acenaphthene-d10	7.45	6.95	7.95	7.44	-0.11
65 Phenanthrene-d10	8.95	8.45	9.45	8.95	0.04
76 Chrysene-d12	11.81	11.31	12.31	11.80	-0.07
83 Perylene-d12	14.05	13.55	14.55	14.04	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h135s10.d  
Date: 16-MAY-1995 00:03  
Client ID:  
Sample Info: 9505164-13B-82705/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

*SPL, INC.*

*REPORT APPROVAL SHEET*

WORK ORDER NUMBER: 95 - 05 - 164

*Approved for release by:*

*M. Scott Sample*  
*M. Scott Sample, Laboratory Director*

Date: *6/1/95*

*Karen Satterfield*  
*Karen Satterfield, Project Manager*

Date: *5/31/95*



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

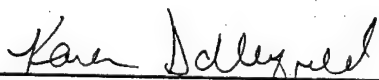
### CASE NARRATIVE

WORK ORDER NO.: 9505164

Southern Petroleum Laboratories (SPL) is pleased to present the results of laboratory analyses to Operational Technologies. The samples were received at our laboratory on May 04, 1995 at a temperature of 3 degrees Celsius. The following is a brief narrative of the laboratory analyses.

Sample 026-001BH 9-9.5 was chosen as the matrix spike and matrix spike duplicate for semi-volatiles. The spike recoveries of compounds 4-nitrophenol and 2,4-dinitrotoluene were outside the QC control limits. A laboratory control sample was analyzed as a QC check for sample preparation and the LCS was within the QC limits. This sample was also the matrix spike and matrix spike duplicated for chromium by method 7191. The recoveries were below SPL's quality assurance limits. A laboratory control sample was also prepared within the digestion batch and exhibited excellent recoveries. Therefore, matrix interference is suspected.

If I can be of further assistance or answer any questions, please do not hesitate to contact me at (713) 660-0901 ext 103.

  
\_\_\_\_\_  
Karen Satterfield  
Project Manager

*QUALITY CONTROL*  
*DOCUMENTATION*



3A  
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPL

Case No.: 504667

SAS No.: \_\_\_\_\_

SDG NO.: 505164

Matrix Spike - EPA Sample No.: 9504234-08C

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC.
1,1-Dichloroethene	50.0	0	50	100	61-145
Trichloroethene	50.0	0	48	96	71-120
Benzene	50.0	0	49	98	76-127
Toluene	50.0	0	47	94	76-125
Chlorobenzene	50.0	0	49	98	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
1,1-Dichloroethene	50.0	50	100	0	14	61-145
Trichloroethene	50.0	48	96	0	14	71-120
Benzene	50.0	50	100	2	11	76-127
Toluene	50.0	48	96	2	13	76-125
Chlorobenzene	50.0	49	98	0	13	75-130

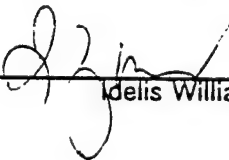
# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

FORM III VOA - 1

  
Idelis Williams, Q C Officer

3B

## SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPLCase No.: 505164

SAS No.: \_\_\_\_\_

SDG NO.: 505164Matrix Spike - EPA Sample No.: 026-001BB 9-9.5

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMIT REC.
1,1-Dichloroethene	50.0	0	44	88	59-172
Trichloroethene	50.0	0	44	88	62-137
Benzene	50.0	0	47	94	66-142
Toluene	50.0	0	43	86	59-139
Chlorobenzene	50.0	0	41	82	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC#	% RPD	QC LIMIT =====	
1,1-Dichloroethene	50.0	46	92	4	RPD	REC.
Trichloroethene	50.0	46	92	4	22	59-172
Benzene	50.0	49	98	4	24	62-137
Toluene	50.0	45	90	5	21	66-142
Chlorobenzene	50.0	43	86	5	21	59-139
						60-133

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 5 outside limitsSpike Recovery: 0 out of 10 outside limits

FORM III VOA - 2

  
 Idelis Williams, QC Officer

## SPL Blank QC Report

page 1

Matrix: Soil  
Sample ID: BLANK  
Batch: K950508094856

Reported on: 05/15/95 17:42  
Analyzed on: 05/08/95 12:44  
Analyst: HLW

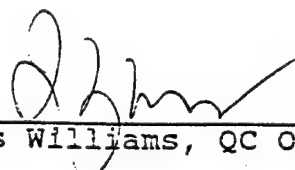
METHOD 8240

K128B02

C o m p o u n d	Result	Detection Limit	Units
1,2-Dichloroethene (total)	ND	5	ug/Kg
Xylene (Total)	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Chloroethane	ND	10	ug/Kg
Bromomethane	ND	10	ug/Kg
Acetone	ND	100	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
Methylene Chloride	ND	5	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Chloroform	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
Benzene	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 2

Matrix: Soil  
Sample ID: BLANK  
Batch: K950508094856

Reported on: 05/15/95 17:42  
Analyzed on: 05/08/95 12:44  
Analyst: HLW

METHOD 8240

K128B02

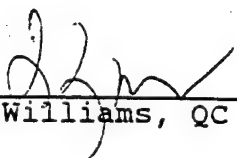
C o m p o u n d	Result	Detection Limit	Units
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg

S u r r o g a t e	Result	QC Criteria	Units
1,2-Dichloroethane-d4	92	70-121	% Recovery
Toluene-d8	105	84-138	% Recovery
Bromofluorobenzene	97	59-113	% Recovery

Samples in Batch 9505164-01 9505164-02 9505164-03 9505164-04  
9505164-05 9505164-06

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

SPL Labs

Volatiles by 8240  
Data file : /chem/k.i/k950508.b/k128b02.d  
Lab Smp Id: BLANK-8240S/1X  
Inj Date : 08-MAY-1995 12:44  
Operator : HLW  
Smp Info : BLANK-8240S/1X  
Misc Info : K128S1//K128CS2  
Comment :  
Method : /chem/k.i/k950508.b/kvoclp.s.m  
Meth Date : 08-May-1995 11:42 hillery  
Cal Date : 08-MAY-1995 11:24  
Als bottle: 5  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10  
Inst ID: k.i  
Quant Type: ISTD  
Cal File: k128cs2.d  
Compound Sublist: all.sub

Compounds	QUANT SIG						CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE		ON-COLUMN	FINAL
							( ng)	(ug/Kg)
* 20 Bromochloromethane	128.00	2.121	2.120	(1.000)	89552		250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.379	2.378	(1.121)	37770		230	46
* 31 1,4-Difluorobenzene	114.00	2.803	2.802	(1.000)	508518		250	
\$ 40 Toluene-d8	98.00	4.545	4.545	(0.673)	582353		260	52
* 51 Chlorobenzene-d5	117.00	6.758	6.772	(1.000)	366154		250	
\$ 61 Bromofluorobenzene	95.00	8.879	8.878	(1.314)	194859		240	48

Report Date: 08-May-1995 13:18

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k128b02.d  
Lab Smp Id: BLANK-8240S/1X  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Misc Info: K128S1//K128CS2

Calibration Date: 05/08/95  
Calibration Time: 1124

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	388679	44340	177358	89552	0.98
31 1,4-Difluorobenzene	553116	276558	1106232	508518	-8.06
51 Chlorobenzene-d5	397197	198598	794394	366154	-7.82

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.03
31 1,4-Difluorobenzene	2.80	2.30	3.30	2.80	0.02
51 Chlorobenzene-d5	6.77	6.27	7.27	6.76	-0.21

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

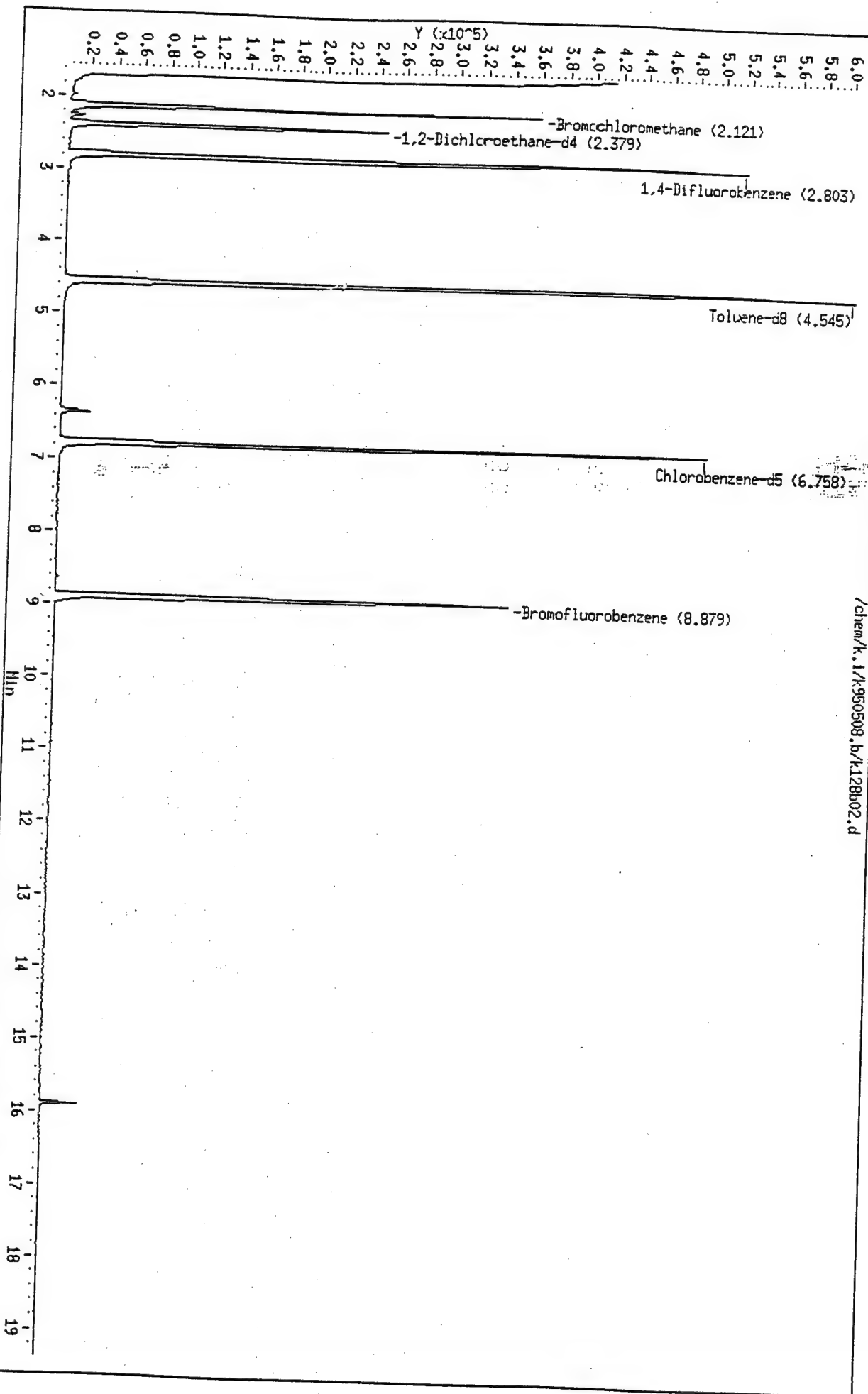
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950508.b/k128b02.d  
Date : 08-MAY-1995 12:44  
Client ID:  
Sample Info: BLANK-82405/1X

Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1  
Operator: HLM  
Column diameter: 0.25

/chem/k.1/k950508.b/k128b02.d



## SPL Blank QC Report

page 3

Matrix: Soil  
Sample ID: BLANK  
Batch: K950509094856

Reported on: 05/15/95 17:42  
Analyzed on: 05/09/95 12:29  
Analyst: HLW

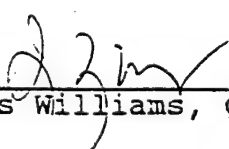
METHOD 8240S

K129B02

Compound	Result	Detection Limit	Units
1,2-Dichloroethene (total)	ND	5	ug/Kg
Xylene (Total)	ND	5	ug/Kg
Chloromethane	ND	10	ug/Kg
Vinyl Chloride	ND	10	ug/Kg
Chloroethane	ND	10	ug/Kg
Bromomethane	ND	10	ug/Kg
Acetone	ND	100	ug/Kg
Trichlorofluoromethane	ND	5	ug/Kg
1,1-Dichloroethene	ND	5	ug/Kg
Methylene Chloride	ND	5	ug/Kg
Carbon Disulfide	ND	5	ug/Kg
1,1-Dichloroethane	ND	5	ug/Kg
2-Chloroethylvinylether	ND	10	ug/Kg
Vinyl Acetate	ND	10	ug/Kg
2-Butanone	ND	20	ug/Kg
Chloroform	ND	5	ug/Kg
1,1,1-Trichloroethane	ND	5	ug/Kg
1,2-Dichloroethane	ND	5	ug/Kg
Benzene	ND	5	ug/Kg
Carbon Tetrachloride	ND	5	ug/Kg
1,2-Dichloropropane	ND	5	ug/Kg
Trichloroethene	ND	5	ug/Kg
Bromodichloromethane	ND	5	ug/Kg
trans-1,3-Dichloropropene	ND	5	ug/Kg
4-Methyl-2-Pentanone	ND	10	ug/Kg
cis-1,3-Dichloropropene	ND	5	ug/Kg
Toluene	ND	5	ug/Kg
1,1,2-Trichloroethane	ND	5	ug/Kg
2-Hexanone	ND	10	ug/Kg
Dibromochloromethane	ND	5	ug/Kg
Tetrachloroethene	ND	5	ug/Kg
Chlorobenzene	ND	5	ug/Kg
Ethylbenzene	ND	5	ug/Kg
Bromoform	ND	5	ug/Kg

Notes

ND - Not detected.

  
Idelis Williams, QC Officer



## SPL Blank QC Report

page

Matrix: Soil  
Sample ID: BLANK  
Batch: K950509094856

Reported on: 05/15/95 17:42  
Analyzed on: 05/09/95 12:29  
Analyst: HLW

METHOD 8240S

K129B02

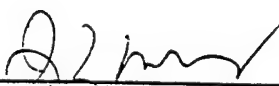
C o m p o u n d	Result	Detection Limit	Units
Styrene	ND	5	ug/Kg
1,1,2,2-Tetrachloroethane	ND	5	ug/Kg

S u r r o g a t e	Result	QC Criteria	Units
1,2-Dichloroethane-d4	97	70-121	% Recovery
Toluene-d8	98	84-138	% Recovery
Bromofluorobenzene	97	59-113	% Recovery

Samples in Batch 9505164-07 9505164-08 9505164-09 9505164-10  
9505164-12 9505164-13

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

Data File: /chem/k.i/k950509.b/k129b02.d  
Report Date: 09-May-1995 14:26

Page 1

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129b02.d

Lab Smp Id: BLANK-8240S/1X

Inj Date : 09-MAY-1995 12:29

Operator : HLW

Inst ID: k.i

Smp Info : BLANK-8240S/1X

Misc Info : K129S1//K129CS2

Comment :

Method : /chem/k.i/k950509.b/kvoclp.s.m

Meth Date : 09-May-1995 11:38 hillery Quant Type: ISTD

Cal Date : 09-MAY-1995 11:08 Cal File: k129cs2.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Compound Sublist: all.sub

Compounds	QUANT SIG		CONCENTRATIONS				
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ng)	FINAL (ug/Kg)
* 20 Bromochloromethane	128.00	2.120	2.123	(1.000)	95890	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.378	2.365	(1.121)	41030	240	48
* 31 1,4-Difluorobenzene	114.00	2.802	2.789	(1.000)	548254	250	
\$ 40 Toluene-d8	98.00	4.545	4.532	(0.673)	622868	240	49
* 51 Chlorobenzene-d5	117.00	6.757	6.759	(1.000)	414533	250	
\$ 61 Bromofluorobenzene	95.00	8.863	8.865	(1.312)	219572	240	48

SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: k.i  
 Lab File ID: k129b02.d  
 Lab Smp Id: BLANK-8240S/1X  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: HLW  
 Method File: /chem/k.i/k950509.b/kvoclp.s.m  
 Misc Info: K129S1//K129CS2

Calibration Date: 05/09/95  
 Calibration Time: 1108

Level: LOW  
 Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	95890	10.89
31 1,4-Difluorobenzene	552052	276026	1104104	548254	-0.69
51 Chlorobenzene-d5	389031	194516	778062	414533	6.56

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	-0.11
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.80	0.46
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950509.b/k129602.d

Date : 09-MAY-1995 12:29

Client ID:

Sample Info: BLANK-82405/1X

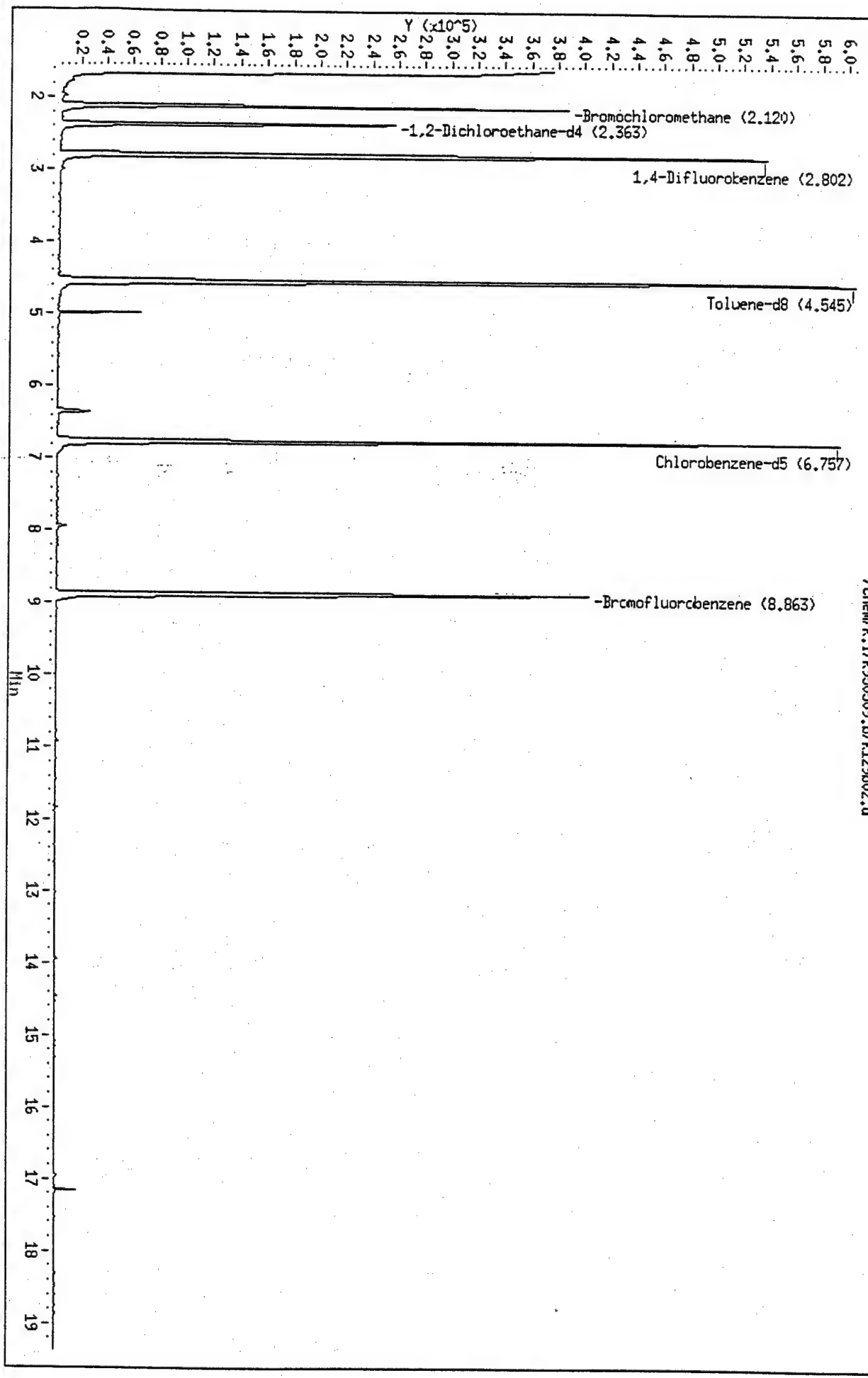
Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1

Operator: HLN

Column diameter: 0.25

/chem/k.1/k950509.b/k129602.d



## SPL Blank QC Report

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Matrix: Aqueous  
Sample ID: BLANK  
Batch: L950505104642

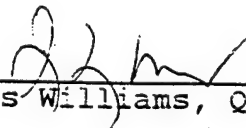
Reported on: 05/15/95 17:42  
Analyzed on: 05/06/95 01:45  
Analyst: JC

METHOD 8240/624 L125B02

C o m p o u n d	Result	Detection Limit	Units
Chloromethane	ND	10	ug/L
Vinyl Chloride	ND	10	ug/L
Bromomethane	ND	10	ug/L
Chloroethane	ND	10	ug/L
Trichlorofluoromethane	ND	5	ug/L
Acetone	ND	100	ug/L
1,1-Dichloroethene	ND	5	ug/L
Methylene Chloride	ND	5	ug/L
Carbon Disulfide	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene (total)	ND	5	ug/L
Vinyl Acetate	ND	10	ug/L
2-Butanone	ND	20	ug/L
Chloroform	ND	5	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
Benzene	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
2-Chloroethylvinylether	ND	10	ug/L
4-Methyl-2-Pentanone	ND	10	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Toluene	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
2-Hexanone	ND	10	ug/L
Dibromochloromethane	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Xylene (Total)	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Bromoform	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 6

Matrix: Aqueous  
Sample ID: BLANK  
Batch: L950505104642

Reported on: 05/15/95 17:42  
Analyzed on: 05/06/95 01:45  
Analyst: JC

METHOD 8240/624 L125B02

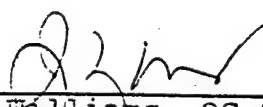
C o m p o u n d	Result	Detection Limit	Units
Styrene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L

S u r r o g a t e	Result	QC Criteria	Units
1,2-Dichloroethane-d4	104	76-114	% Recovery
Toluene-d8	100	88-110	% Recovery
Bromofluorobenzene	96	86-115	% Recovery

Samples in Batch 9505164-11

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

ata File: /chem/l.i/l950505.b/l125b02.d  
eport Date: 06-May-1995 08:52

Page 1

SPL Labs

Volatiles by 624/8240

ata file : /chem/l.i/l950505.b/l125b02.d

ab Smp Id:

aj Date : 06-MAY-1995 01:45

perator : JC

Inst ID: l.i

mp Info : BLANK-8240W/1X

isc Info : L125W1//L124CW1

omment :

ethod : /chem/l.i/l950505.b/lvoclpw.m

eth Date : 06-May-1995 08:33 jimmy

Quant Type: ISTD

al Date : 06-MAY-1995 01:18

Cal File: l125cw1.d

ls bottle: 20

ll Factor: 1.000

tegrator: HP RTE

Compound Sublist: all.sub

arget Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
23 Bromochloromethane	128.00	5.226	5.223	(1.000)	46959	250	
26 1,2-Dichloroethane-d4	102.00	5.993	5.990	(1.147)	19520	260	52
32 1,4-Difluorobenzene	114.00	6.929	6.926	(1.000)	251022	250	
43 Toluene-d8	98.00	9.148	9.154	(0.824)	277671	250	50
50 Chlorobenzene-d5	117.00	11.100	11.097	(1.000)	202743	250	
61 Bromofluorobenzene	95.00	12.776	12.773	(1.151)	100693	240	48

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
File ID: 1125b02.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950505.b/lvoclpw.m  
Misc Info: L125W1//L124CW1

Calibration Date: 05/06/95  
Calibration Time: 0118

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	48316	24158	96632	46959	-2.81
32 1,4-Difluorobenzene	248535	124268	497070	251022	1.00
50 Chlorobenzene-d5	204023	102012	408046	202743	-0.63

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.23	0.06
32 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.05
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950505.b/1125b02.d  
Date : 06-MAY-1995 01:45

Client ID:

Sample Info: BLANK-8240M/1X

Purge Volume: 5.0

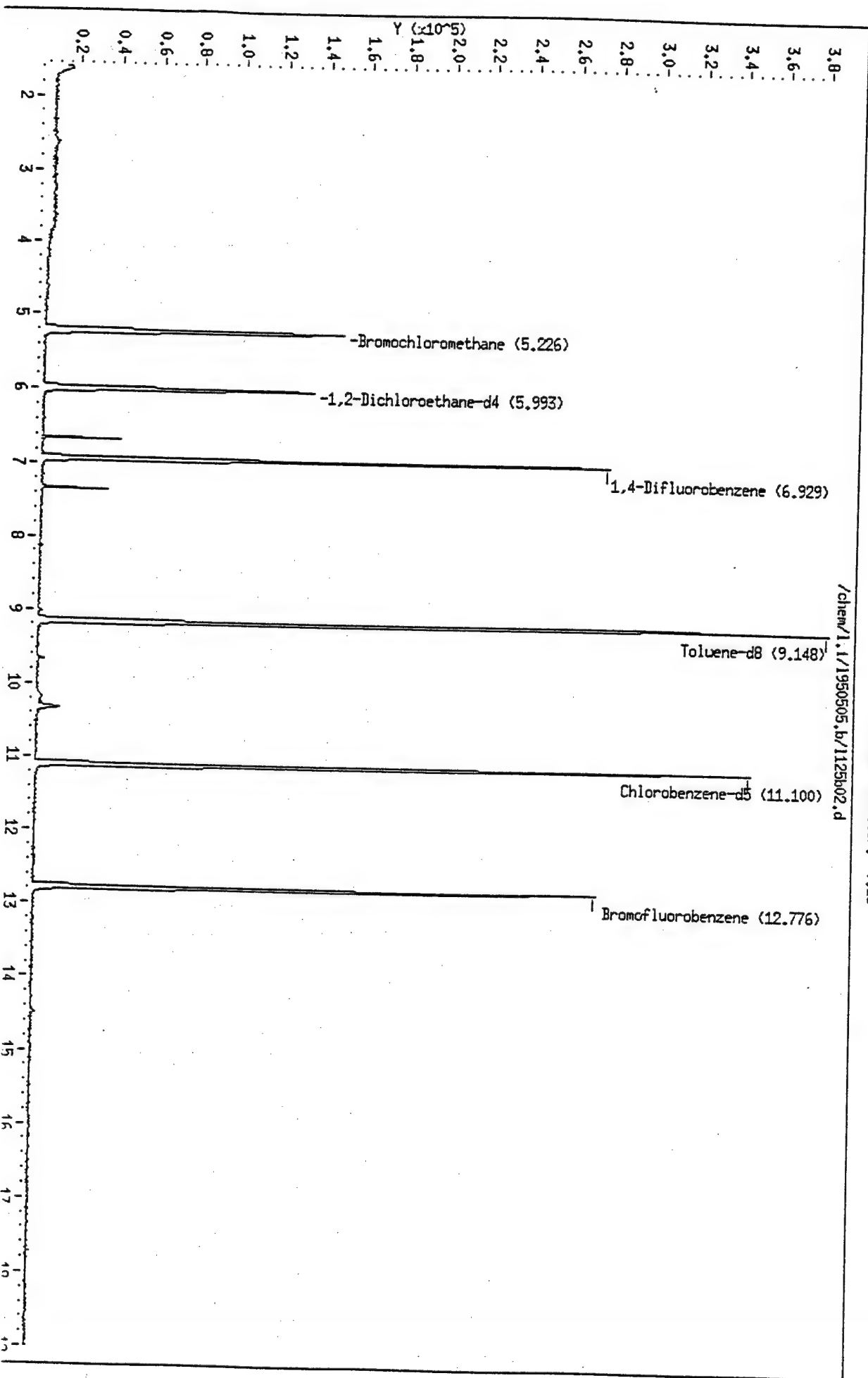
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

Page 4

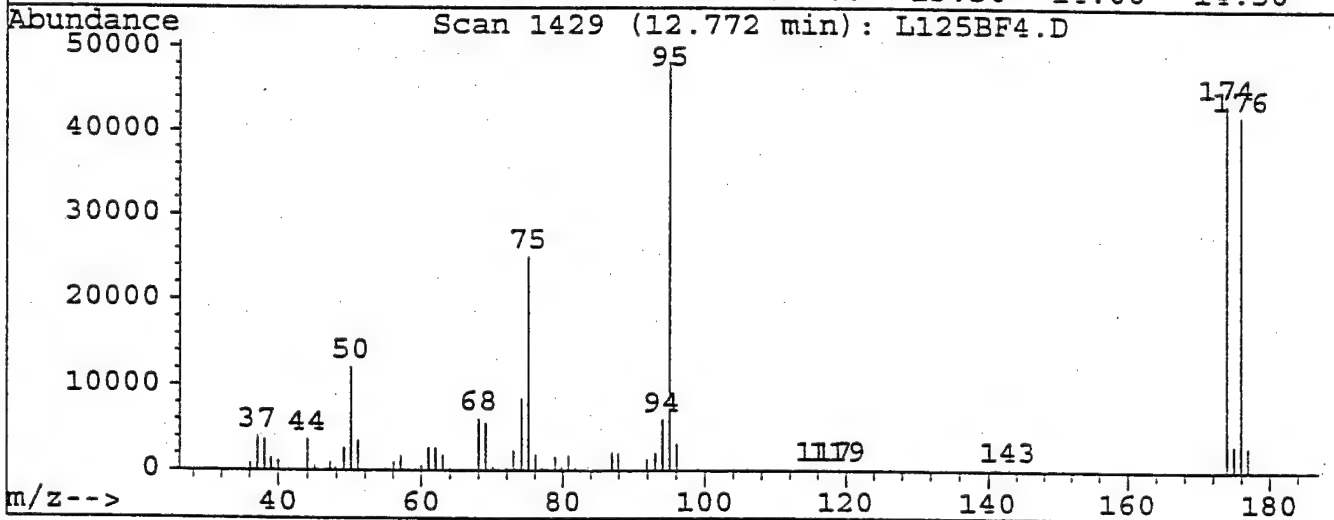
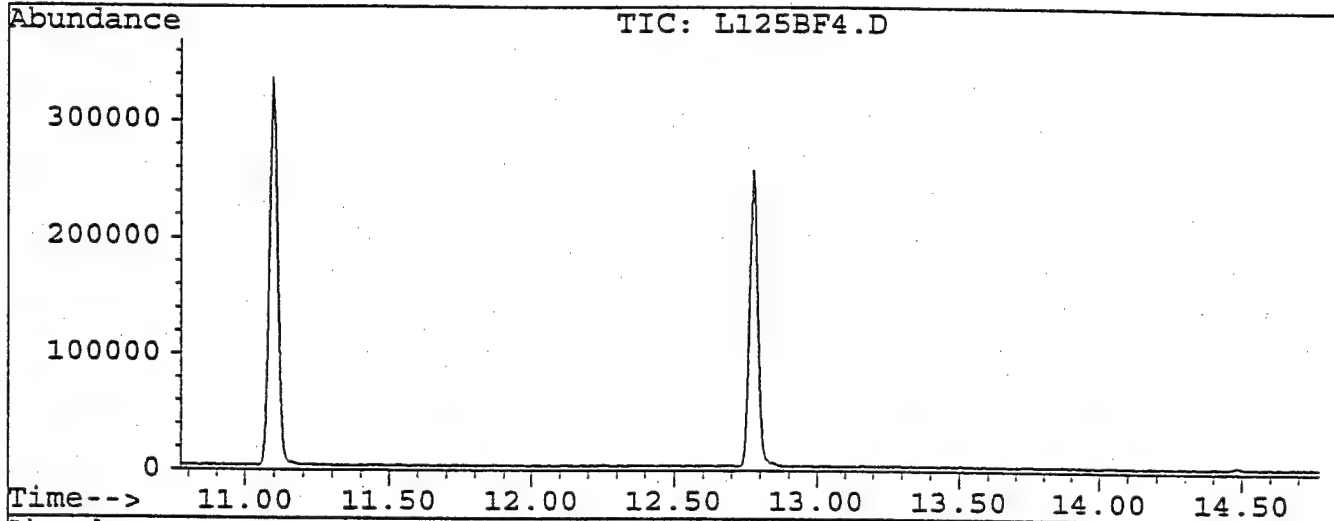


BFB

Data File : C:\HPCHEM\1\DATA\L950505\L125BF4.D  
 Acq On : 6 May 95 12:51 am  
 Sample : 50 NG BFB  
 Misc : PURGING INJECTION

Vial: 18  
 Operator:  
 Inst : 1  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\ENVDEF.M  
 Title :



Peak Apex is scan: 1429

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	25.3	12175	PASS
75	95	30	60	51.9	25016	PASS
95	95	100	100	100.0	48200	PASS
96	95	5	9	6.5	3139	PASS
173	174	0	2	0.0	0	PASS
174	95	50	120	90.0	43384	PASS
175	174	5	9	7.2	3127	PASS
176	174	95	101	96.7	41936	PASS
177	176	5	9	7.0	2935	PASS

Data File: /chem/k.i/k950508.b/k128bf1.d

Page 2

Date : 08-MAY-95 10:02

Client ID:

Instrument: k.i

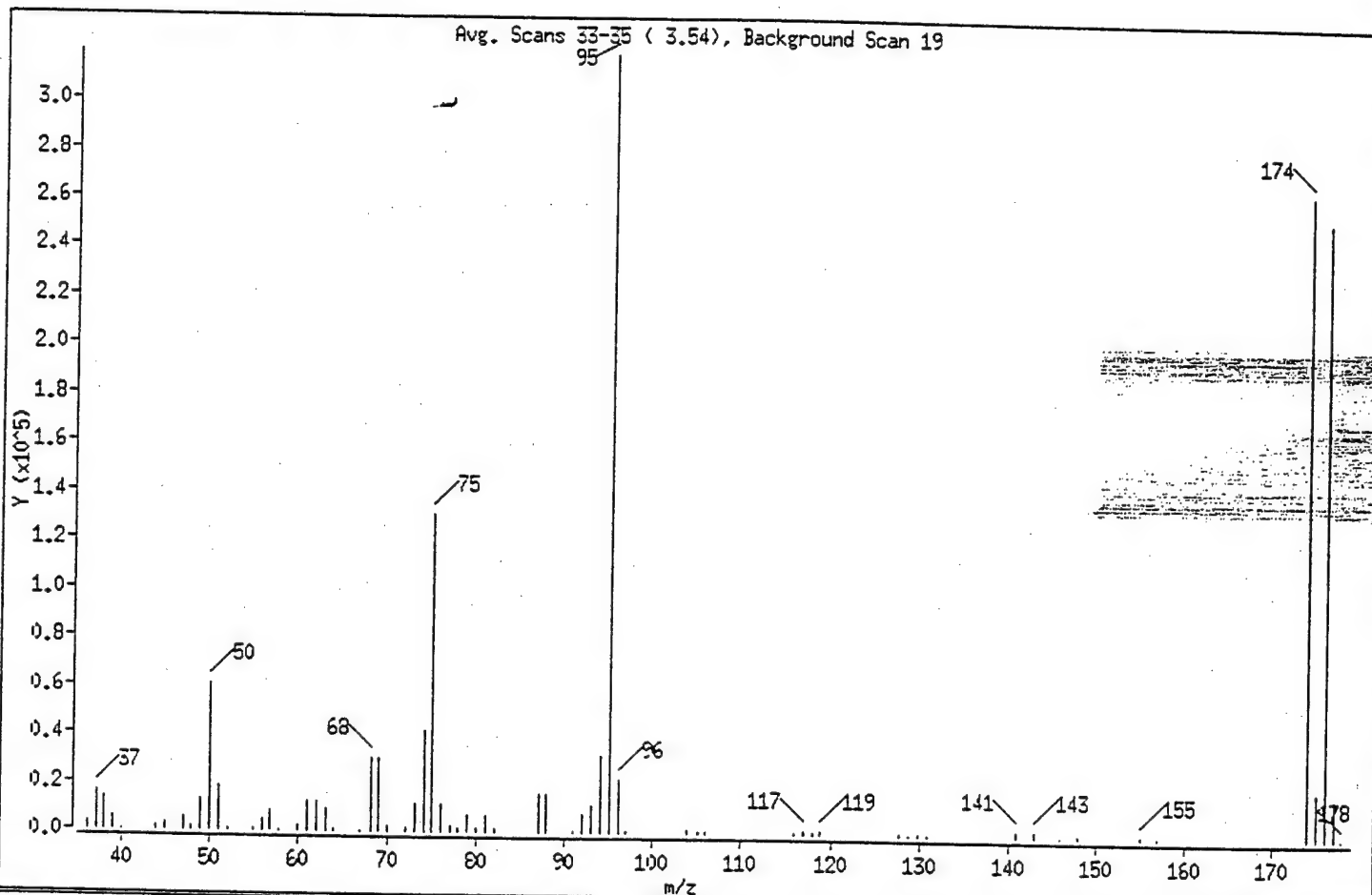
Sample Info: BFB 50 NG

Operator:

Column phase:

Column diameter: 2.00

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.01
75	30.00 - 60.00% of mass 95	40.88
96	5.00 - 9.00% of mass 95	6.84
173	Less than 2.00% of mass 174	0.00 ( 0.00)
174	50.00 - 120.00% of mass 95	82.75
175	5.00 - 9.00% of mass 174	6.00 ( 7.26)
176	95.00 - 101.00% of mass 174	79.18 ( 95.69)
177	5.00 - 9.00% of mass 176	5.20 ( 6.57)

Data File: /chem/k.i/k950508.b/k128bf1.d

Page 3

Date : 08-MAY-95 10:02

Client ID:

Instrument: k.i

Sample Info: BFB 50 NG

Operator:

Column phase:

Column diameter: 2.00

Data File: k128bf1.d

Spectrum : Avg. Scans 33-35 ( 3.54), Background Scan 19

Largest m/z: 95.10

Number of peaks: 68

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	3114	61.05	12408	82.05	1197	128.85	185
37.10	16051	62.05	11938	87.05	15847	129.95	949
38.00	13478	63.05	8909	87.95	15761	131.00	168
39.00	5212	64.05	747	91.00	988	140.95	2047
40.00	135	66.95	340	92.10	7216	142.95	2186
44.05	1134	68.05	30440	93.00	11074	145.85	359
45.05	3112	69.05	29992	94.10	31624	147.95	514
47.05	4939	70.05	2202	95.10	319680	155.00	673
47.95	1786	72.00	1408	96.10	21848	156.90	221
49.05	12558	73.10	11236	97.10	611	174.00	264512
50.05	60768	74.10	41512	103.95	1146	175.00	19192
51.10	18016	75.10	130688	105.05	611	176.00	255120
52.10	681	76.10	11396	105.95	1059	177.00	16624
55.00	720	77.00	2038	115.90	593	177.90	235
56.00	4432	77.90	1438	116.90	1538		
57.00	8099	78.90	6856	118.00	687		
58.00	179	80.00	1880	118.90	1224		
60.00	2565	80.95	6832	127.85	1018		

Data File: /chem/k.i/k950508.b/k128bf1.d

Page 1

Date : 08-MAY-95 10:02

Client ID:

Instrument: k.i

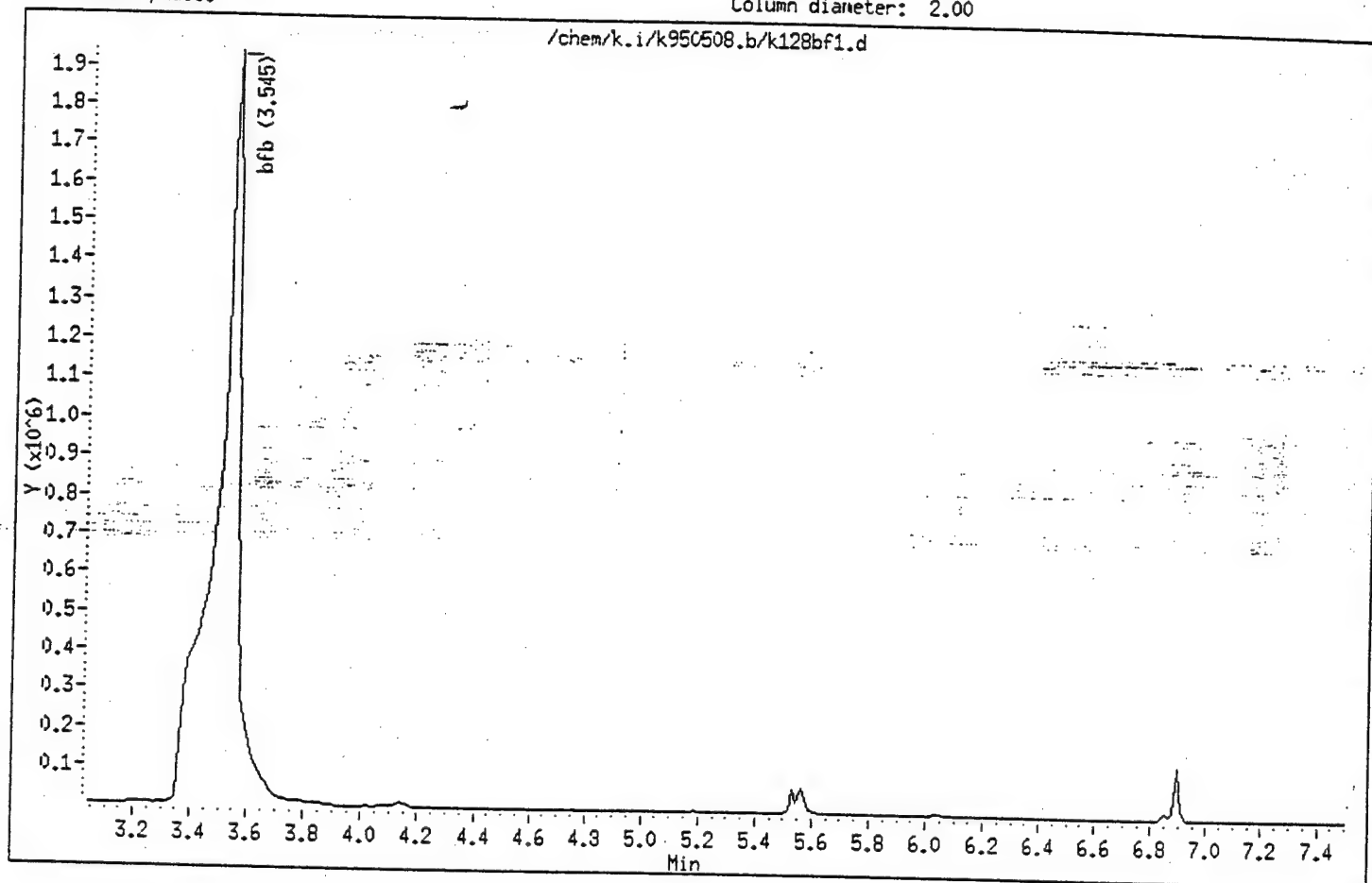
Sample Info: BFB 50 NG

Operator:

Column phase:

Column diameter: 2.00

/chem/k.i/k950508.b/k128bf1.d



Data File: /chem/k.i/k950509.b/k129bf1.d

Page 2

Date : 09-MAY-95 10:11

Client ID:

Instrument: k.i

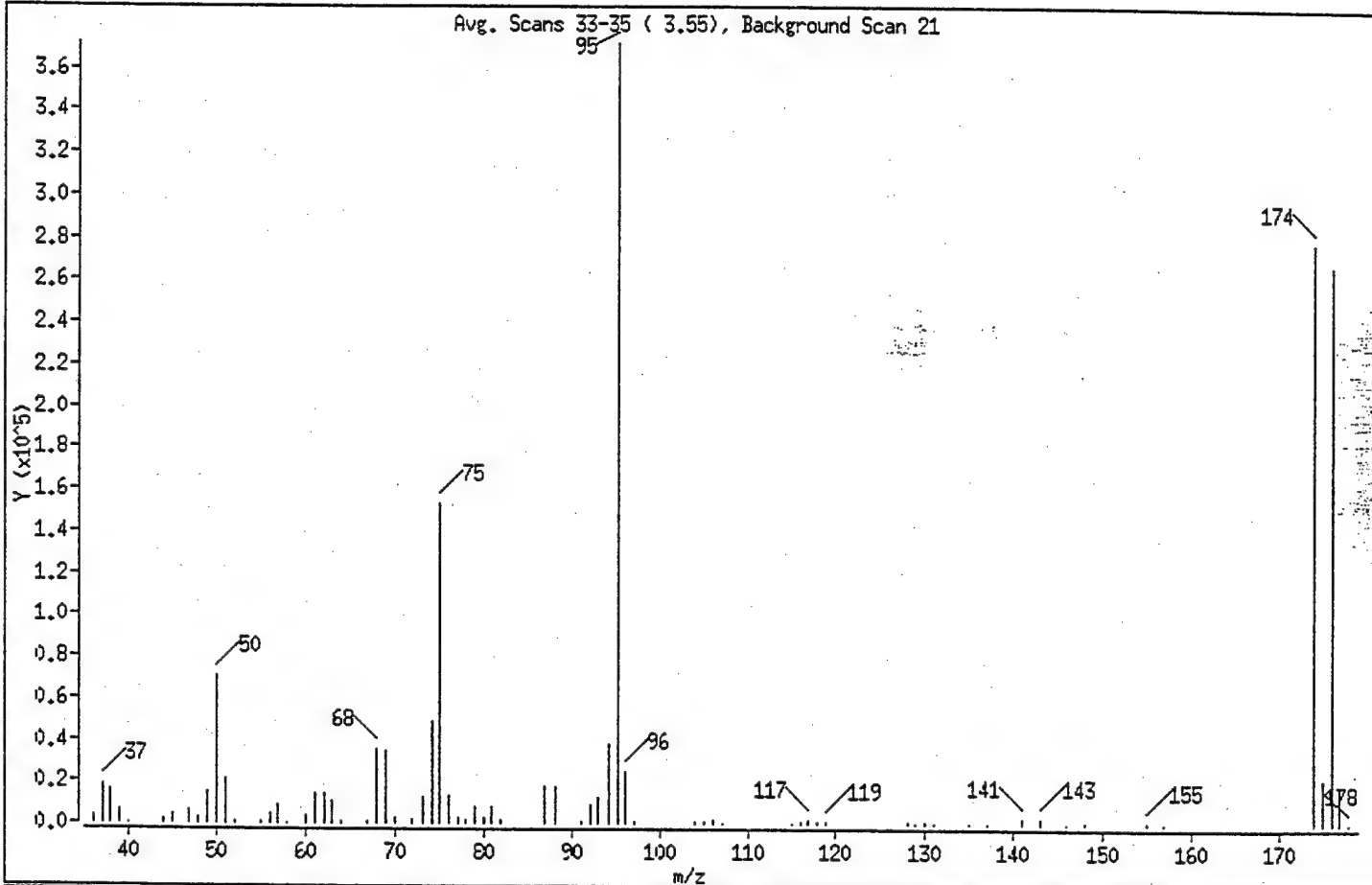
Sample Info: BFB 50 NG

Operator:

Column phase:

Column diameter: 2.00

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	18.95
75	30.00 - 60.00% of mass 95	41.14
96	5.00 - 9.00% of mass 95	6.52
173	Less than 2.00% of mass 174	0.00 ( 0.00)
174	50.00 - 120.00% of mass 95	74.71
175	5.00 - 9.00% of mass 174	5.61 ( 7.51)
176	95.00 - 101.00% of mass 174	71.88 ( 96.22)
177	5.00 - 9.00% of mass 176	4.77 ( 6.64)

Data File: /chem/k.i/k950509.b/k129bf1.d

Date : 09-MAY-95 10:11

Client ID:

Sample Info: BFB 50 NG

Page 3

Instrument: k.i

Operator:

Column phase:

Column diameter: 2.00

Data File: k129bf1.d

Spectrum : Avg. Scans 33-35 ( 3.55), Background Scan 21

Largest m/z: 95.10

Number of peaks: 72

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	3803	62.05	13883	88.05	17792	129.95	1052
37.10	18904	63.05	10314	91.00	1259	131.00	181
38.10	16210	64.05	999	92.10	8673	135.00	245
39.10	6108	66.95	539	93.00	12683	136.90	212
40.00	96	68.05	35072	94.10	37624	140.95	2473
44.05	1612	69.05	34656	95.10	372096	142.95	2646
45.05	4027	70.05	2834	96.10	24272	145.95	223
47.05	6049	72.00	1832	97.10	808	147.95	834
47.95	2424	73.10	12557	103.95	1290	155.00	794
49.05	14547	74.10	48176	104.95	838	156.90	424
50.05	70512	75.10	153088	105.95	1346	174.00	277952
51.10	21104	76.10	13253	106.95	188	175.00	20872
52.10	1098	77.10	2474	115.00	171	176.00	267456
55.10	1039	78.00	1771	115.90	939	177.00	17752
56.00	4571	78.90	7822	116.90	1701	178.00	395
57.00	9122	80.00	2237	117.90	963		
58.00	215	80.95	8051	118.90	1280		
60.00	3258	81.95	1611	127.95	1081		
61.05	14489	86.95	17832	128.95	244		

Data File: /chem/k.i/k950509.b/k129bf1.d

Page 1

Date : 09-MAY-95 10:11

Client ID:

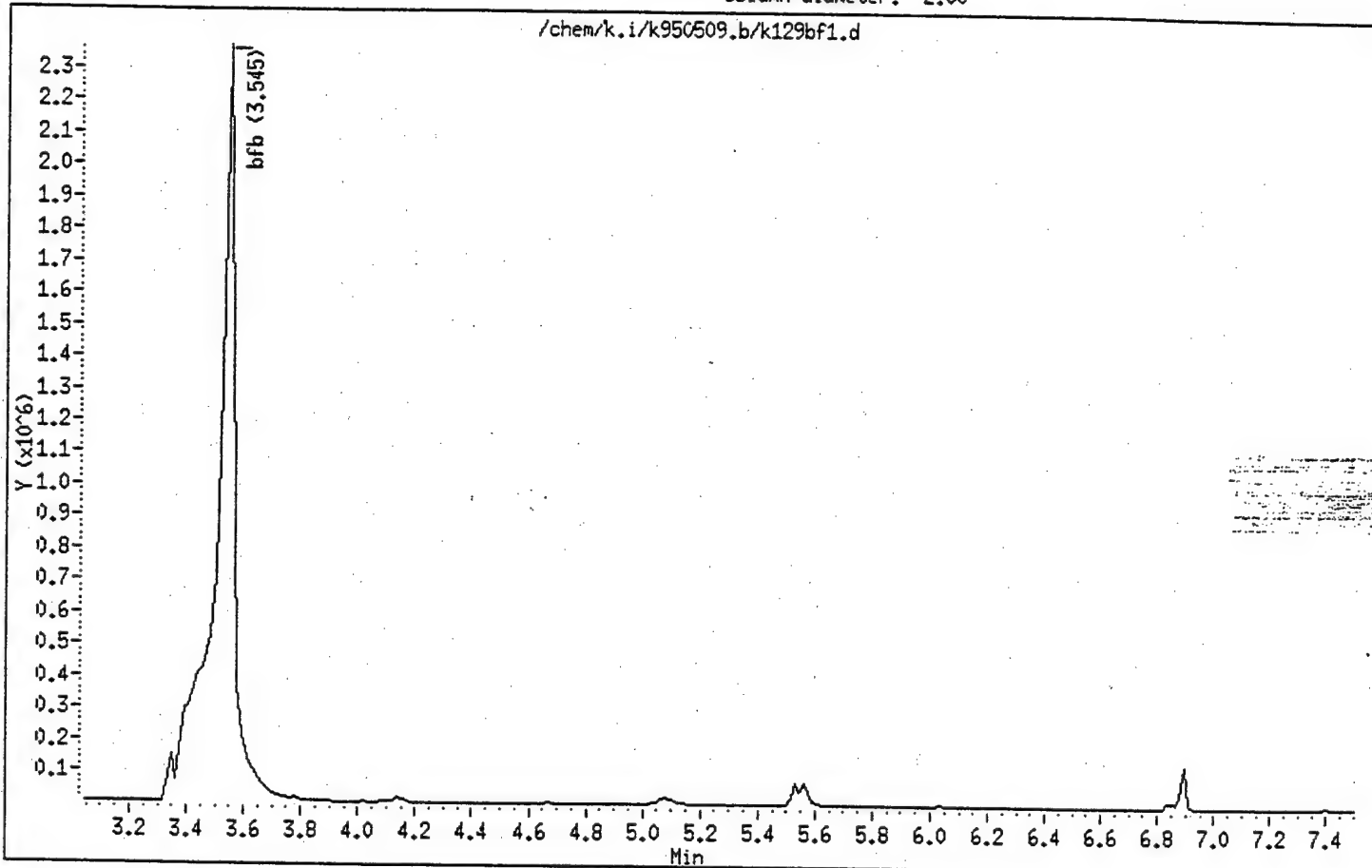
Instrument: k.i

Sample Info: BFB 50 NG

Operator:

Column phase:

Column diameter: 2.00





## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 02-MAY-1995 20:30  
 End Cal Date : 02-MAY-1995 21:27  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/k.i/k950502.b/kvocclps.m  
 Cal Date : 03-May-1995 10:04 hillery  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/k.i/k950502.b/k122is1e.d  
 Level 2: /chem/k.i/k950502.b/k122is2e.d  
 Level 3: /chem/k.i/k950502.b/k122cs7.d  
 Level 4: /chem/k.i/k950502.b/k122is4e.d  
 Level 5: /chem/k.i/k950502.b/k122is5e.d

Compound	50 Level 1	100 Level 2	250 Level 3	500 Level 4	1000 Level 5	RRF	% RSD
4 Chloromethane	2.61598	2.81482	2.12233	2.24403	2.45830	2.45109	11.367
5 Vinyl Chloride	2.65380	2.94683	2.27075	2.29473	2.52382	2.53798	10.993
7 Bromomethane	2.11466	2.01524	1.61752	1.66188	1.78547	1.83895	11.862
6 Chloroethane	1.70772	2.47252	1.96573	1.98068	2.14242	2.05381	13.687
9 Trichlorofluoromethane	1.49304	2.08578	2.00085	1.92770	2.26966	1.95541	14.741
8 Acetone	0.27178	0.26116	0.28834	0.18784	0.20866	0.24356	17.700
10 1,1-Dichloroethene	1.85538	2.17717	2.01911	2.00216	2.12934	2.03663	6.147
11 Methylene Chloride	2.38104	2.68890	2.40798	2.23657	2.35295	2.41349	6.930
M 1 1,2-Dichloroethene (total)	2.48786	2.60735	2.54327	2.57358	2.54340	2.55109	1.730
12 Carbon Disulfide	7.61210	8.72426	7.92999	7.84861	8.50089	8.12317	5.767
13 trans-1,2-Dichloroethene	2.45393	2.74754	2.54113	2.51774	2.65500	2.58307	4.537
14 1,1-Dichloroethane	4.64531	5.12809	4.72981	4.78124	4.76879	4.81065	3.851
16 Vinyl Acetate	4.39095	4.67428	4.62771	4.19908	3.81329	4.34106	8.099
17 2-Butanone	2.07727	1.95040	2.25063	1.42863	1.46330	1.93405	20.182
19 cis-1,2-Dichloroethene	2.52179	2.46715	2.54541	2.62942	2.43180	2.51911	3.022
21 Chloroform	4.03686	4.22412	3.99063	3.86111	4.20345	4.06323	3.740
24 1,1,1-Trichloroethane	3.10851	3.57553	3.17577	3.10886	3.55489	3.30471	7.247
25 1,2-Dichloroethane	0.46771	0.44242	0.46820	0.45167	0.45093	0.45619	2.487
27 Benzene	1.45923	1.42676	1.47373	1.47356	1.42845	1.45235	1.608
28 Carbon Tetrachloride	0.37727	0.36450	0.38452	0.39331	0.40772	0.38546	4.232
33 1,2-Dichloropropane	0.39723	0.37732	0.40855	0.37269	0.37777	0.38671	3.990
34 Trichloroethene	0.33210	0.31444	0.34870	0.32128	0.32473	0.32825	3.986
35 Bromodichloromethane	0.41562	0.40335	0.45507	0.41056	0.44324	0.42557	5.255
15 2-Chloroethylvinylether	0.76056	0.69309	0.74966	0.77129	0.68699	0.73232	5.381
38 4-Methyl-2-Pentanone	0.36838	0.41150	0.43019	0.23238	0.26823	0.34214	25.631
42 cis-1,3-Dichloropropene	0.39013	0.36628	0.41665	0.38134	0.39805	0.39049	4.810
37 trans-1,3-Dichloropropene	0.66711	0.74886	0.70980	0.62420	0.74084	0.69816	7.498

## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 02-MAY-1995 20:30  
 End Cal Date : 02-MAY-1995 21:27  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/k.i/k950502.b/kvoclp.s.m  
 Cal Date : 03-May-1995 10:04 hillery  
 Curve Type : Average

Compound	50 Level 1	100 Level 2	250 Level 3	500 Level 4	1000 Level 5	RRF	% RSD
43 Toluene	1.22134	1.32245	1.18326	1.04139	1.17488	1.18866	8.504
44 1,1,2-Trichloroethane	0.34616	0.33240	0.31910	0.27189	0.31178	0.31627	8.874
45 2-Hexanone	0.35970	0.60509	0.51642	0.14372	0.31633	0.38825	46.295
46 Dibromochloromethane	0.36006	0.38294	0.37802	0.33114	0.40668	0.37177	7.573
48 Tetrachloroethene	0.41111	0.43522	0.40448	0.35990	0.40363	0.40287	6.757
52 Chlorobenzene	1.13558	1.08935	1.14714	1.12095	1.06593	1.11179	3.019
M 2 Xylene (Total)	0.69398	0.81685	0.69844	0.69500	0.67635	0.71612	7.953
53 Ethylbenzene	0.59157	0.65401	0.60740	0.59508	0.59898	0.60941	4.204
54 m,p-Xylene(s)	0.71166	0.83335	0.73199	0.70548	0.65004	0.72650	9.222
55 Bromoform	0.17950	0.21853	0.21733	0.20692	0.24260	0.21298	10.719
57 Styrene	1.03398	1.23180	1.04130	1.08557	1.25174	1.12888	9.316
58 o-Xylene	0.65863	0.78384	0.63135	0.67405	0.72897	0.69537	8.765
59 1,1,2,2-Tetrachloroethane	0.36578	0.44209	0.33519	0.32841	0.31594	0.35748	14.192
S 23 1,2-Dichloroethane-d4	0.46776	0.54303	0.42892	0.45129	0.52086	0.48237	9.941
S 40 Toluene-d8	1.71636	1.89329	1.54687	1.47209	1.67607	1.66093	9.799
S 61 Bromofluorobenzene	0.65848	0.66793	0.55819	0.46477	0.53858	0.57759	14.826

SPL Labs

Data file : /chem/k.i/k950502.b/k122isle.d  
Lab Smp Id: 10 PPB STD 8240S  
Inj Date : 02-MAY-1995 20:30  
Operator : HLW  
Smp Info : 10 PPB STD 8240S  
Misc Info :  
Comment :  
Method : /chem/k.i/k950502.b/kvoclp.s.m  
Meth Date : 10-May-1995 12:23 hillery  
Cal Date : 02-MAY-1995 18:00  
Als bottle: 9  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Volatiles by 8240  
Inst ID: k.i  
Quant Type: ISTD  
Cal File: k122cs7.d  
Compound Sublist: normal.sub

Compounds	QUANT SIG			EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
	MASS	RT					ON-COLUMN ( ng)	FINAL (ug/Kg)
4 Chloromethane	50.00	1.348	1.392 (0.636)			43102	62	12
5 Vinyl Chloride	62.00	1.394	1.422 (0.657)			43725	58	12 (Q)
7 Bromomethane	94.00	1.424	1.437 (0.671)			34842	65	13
6 Chloroethane	64.00	1.439	1.437 (0.679)			28137	43	9 (aQ)
9 Trichlorofluoromethane	100.90	1.515	1.528 (0.714)			24600	37	7
8 Acetone	58.00	1.515	1.513 (0.714)			4478	47	9 (aQM)
10 1,1-Dichloroethene	96.00	1.621	1.619 (0.764)			30570	46	9
11 Methylene Chloride	84.00	1.667	1.665 (0.786)			39231	49	10
M 1 1,2-Dichloroethene (total)	96.00					81982	98	20
12 Carbon Disulfide	76.00	1.712	1.710 (0.807)			125420	48	10
13 trans-1,2-Dichloroethene	96.00	1.773	1.786 (0.836)			40432	48	10
14 1,1-Dichloroethane	63.00	1.848	1.846 (0.871)			76538	49	10
16 Vinyl Acetate	43.00	1.863	1.862 (0.879)			72347	47	9 (a)
17 2-Butanone	43.00	1.970	1.952 (0.929)			34226	46	9 (a)
19 cis-1,2-Dichloroethene	96.00	2.045	2.043 (0.964)			41550	50	10
21 Chloroform	83.00	2.121	2.119 (1.000)			66513	50	10
24 1,1,1-Trichloroethane	97.00	2.394	2.392 (1.129)			51217	49	10
25 1,2-Dichloroethane	62.00	2.409	2.407 (0.864)			47068	50	10
27 Benzene	78.00	2.545	2.543 (0.913)			146848	50	10
28 Carbon Tetrachloride	117.00	2.576	2.574 (0.924)			37966	49	10
33 1,2-Dichloropropane	63.00	3.076	3.074 (1.103)			39975	49	10
34 Trichloroethene	130.00	3.091	3.089 (1.109)			33421	48	10
35 Bromodichloromethane	83.00	3.212	3.210 (1.152)			41826	46	9
15 2-Chloroethylvinylether	63.00	1.848	1.846 (0.663)			76538	51	10
38 4-Methyl-2-Pentanone	43.00	4.061	3.998 (1.457)			37072	43	8 (a)
42 cis-1,3-Dichloropropene	75.00	4.651	4.634 (1.669)			39260	47	9
37 trans-1,3-Dichloropropene	75.00	3.954	3.953 (0.587)			47187	47	9
43 Toluene	92.00	4.636	4.634 (0.688)			86390	52	10
44 1,1,2-Trichloroethane	83.00	4.788	4.771 (0.710)			24485	54	11

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
45 2-Hexanone	43.00	5.424	5.347	(0.804)	25443	35	7 (a)
46 Dibromochloromethane	129.00	5.394	5.377	(0.800)	25468	48	10
48 Tetrachloroethene	164.00	5.788	5.786	(0.858)	29079	51	10
52 Chlorobenzene	112.00	6.803	6.801	(1.009)	80324	49	10
M 2 Xylene (Total)	106.00				147264	150	30
53 Ethylbenzene	106.00	7.242	7.241	(1.074)	41844	49	10
54 m,p-Xylene(s)	106.00	7.455	7.468	(1.106)	100677	97	19
55 Bromoform	173.00	7.818	7.816	(1.160)	12697	41	8
57 Styrene	104.00	8.015	8.013	(1.189)	73137	50	10
58 o-Xylene	106.00	8.061	8.074	(1.196)	46587	52	10
59 1,1,2,2-Tetrachloroethane	83.00	8.621	8.604	(1.279)	25873	54	11
* 20 Bromochloromethane	128.00	2.121	2.119	(1.000)	82382	250	
* 31 1,4-Difluorobenzene	114.00	2.788	2.786	(1.000)	503171	250	
* 51 Chlorobenzene-d5	117.00	6.742	6.756	(1.000)	353668	250	
S 23 1,2-Dichloroethane-d4	102.00	2.364	2.362	(1.114)	7707	54	11 (R)
S 40 Toluene-d8	98.00	4.530	4.528	(0.672)	121404	55	12 (R)
S 61 Bromofluorobenzene	95.00	8.864	8.847	(1.315)	46577	59	12 (R)

# QC Flag Legend

- a - Target compound detected but, quantitated amount Below Limit Of Quantitation (BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: k.i  
 Lab File ID: k122isle.d  
 Lab Smp Id: 10 PPB STD 8240S  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: HLW  
 Method File: /chem/k.i/k950502.b/kvoclps.m  
 Misc Info:

Calibration Date: 05/02/95  
 Calibration Time: 1800

Level: LOW  
 Sample Type: SOIL

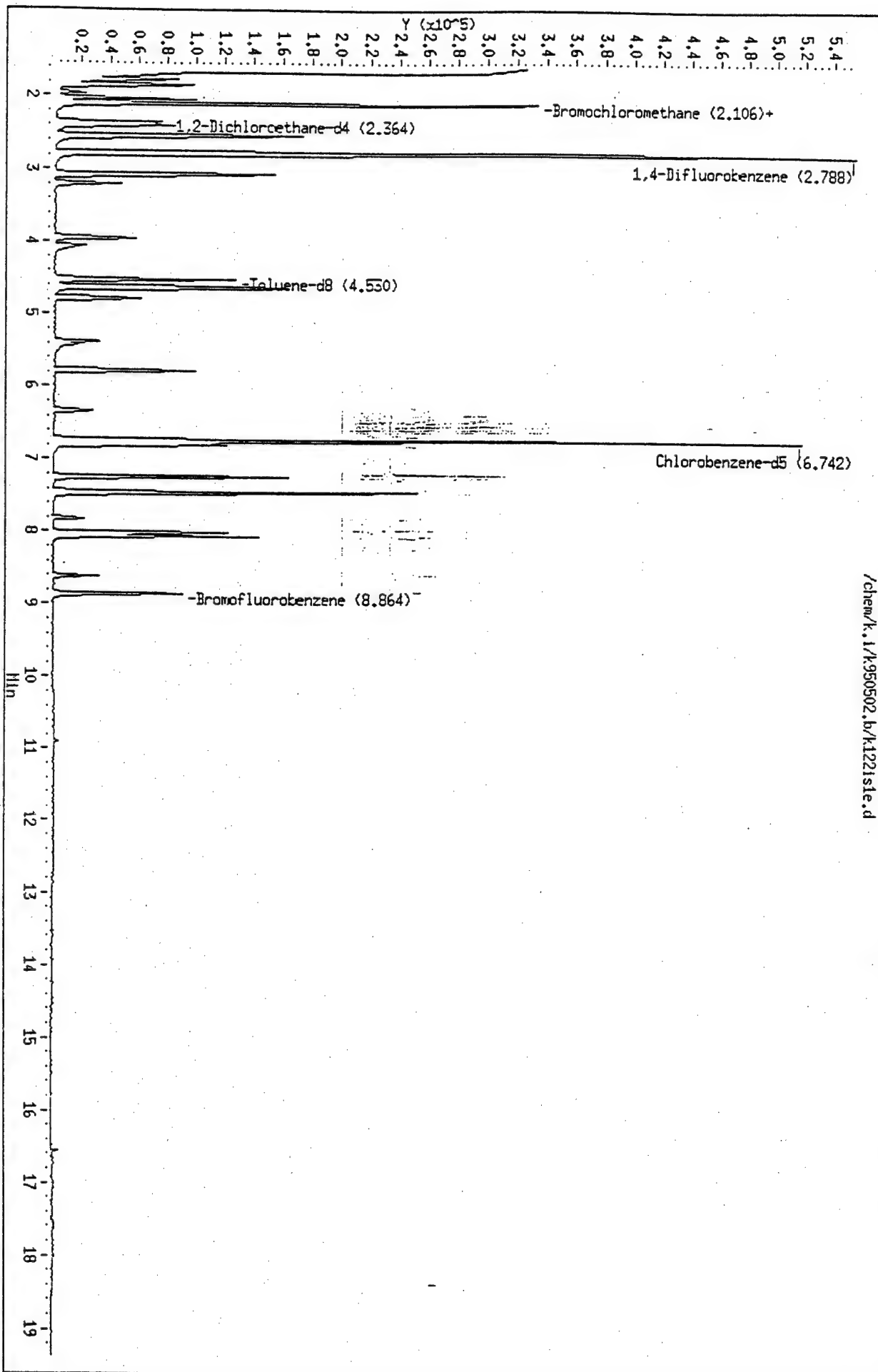
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	77408	38704	154816	82382	6.43
31 1,4-Difluorobenzene	488350	244175	976700	503171	3.03
51 Chlorobenzene-d5	357839	178920	715678	353668	-1.17

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.10
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.07
51 Chlorobenzene-d5	6.76	6.26	7.26	6.74	-0.19

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/K.1/K950502.b/K1221st1e.d  
Date: 02-MAY-1995 20:30  
Client ID:  
Sample Info: 10 PPB STD 82405  
Column phase: 30m, hp5ms, 0.25u df

Instrument: K.1  
Operator: HLM  
Column diameter: 0.25



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122is2e.d

Lab Smp Id: 20 PPB STD 8240S

Inj Date : 02-MAY-1995 19:54

Operator : HLW

Smp Info : 20 PPB STD 8240S

Inst ID: k.i

Misc Info :

Comment :

Method : /chem/k.i/k950502.b/kvoclp.s.m

Meth Date : 10-May-1995 12:23 hillery

Quant Type: ISTD

Cal Date : 02-MAY-1995 18:00

Als bottle: 8

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Cal File: k122cs7.d

Compound Sublist: normal.sub

Compounds	QUANT SIG			RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT REL RT		ON-COLUMN ( ng)	FINAL (ug/Kg)
4 Chloromethane	50.00	1.362	1.392 (0.643)	81838	130	26
5 Vinyl Chloride	62.00	1.392	1.422 (0.657)	85676	130	26 (QM)
7 Bromomethane	94.00	1.438	1.437 (0.678)	58591	120	25
6 Chloroethane	64.00	1.453	1.437 (0.685)	71886	120	25 (Q)
9 Trichlorofluoromethane	100.90	1.529	1.528 (0.721)	60642	100	21
8 Acetone	58.00	1.514	1.513 (0.714)	7593	90	18 (aQM)
10 1,1-Dichloroethene	96.00	1.620	1.619 (0.764)	63299	110	22
11 Methylene Chloride	84.00	1.665	1.665 (0.786)	78177	110	22
M 1 1,2-Dichloroethene (total)	96.00			151612	200	41
12 Carbon Disulfide	76.00	1.710	1.710 (0.807)	253649	110	22
13 trans-1,2-Dichloroethene	96.00	1.786	1.786 (0.843)	79882	110	22
14 1,1-Dichloroethane	63.00	1.847	1.846 (0.871)	149094	110	22
16 Vinyl Acetate	43.00	1.862	1.862 (0.878)	135900	100	20
17 2-Butanone	43.00	1.968	1.952 (0.928)	56706	87	17 (a)
19 cis-1,2-Dichloroethene	96.00	2.044	2.043 (0.964)	71730	97	19
21 Chloroform	83.00	2.120	2.119 (1.000)	122812	100	21
24 1,1,1-Trichloroethane	97.00	2.392	2.392 (1.129)	103955	110	22
25 1,2-Dichloroethane	62.00	2.408	2.407 (0.864)	95170	94	19
27 Benzene	78.00	2.544	2.543 (0.913)	306916	97	19
28 Carbon Tetrachloride	117.00	2.574	2.574 (0.924)	78408	95	19
33 1,2-Dichloropropane	63.00	3.074	3.074 (1.103)	81167	92	18
34 Trichloroethene	130.00	3.089	3.089 (1.109)	67641	90	18
35 Bromodichloromethane	83.00	3.211	3.210 (1.152)	86766	89	18
15 2-Chloroethylvinylether	63.00	1.847	1.846 (0.663)	149094	92	18
38 4-Methyl-2-Pentanone	43.00	4.029	3.998 (1.446)	88519	96	19
42 cis-1,3-Dichloropropene	75.00	4.635	4.634 (1.663)	78792	88	18
37 trans-1,3-Dichloropropene	75.00	3.953	3.953 (0.586)	99671	100	21
43 Toluene	92.00	4.635	4.634 (0.688)	176014	110	22
44 1,1,2-Trichloroethane	83.00	4.786	4.771 (0.710)	44241	100	21

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CN-COLUMN ( ng)	FINAL (ug/Kg)
45 2-Hexanone	43.00	5.392	5.347	(0.800)	80536	120	23
46 Dibromochloromethane	129.00	5.392	5.377	(0.800)	50968	100	20
48 Tetrachloroethene	164.00	5.786	5.786	(0.858)	57926	110	22
52 Chlorobenzene	112.00	6.802	6.801	(1.009)	144990	95	19
M 2 Xylene (Total)	106.00				326160	350	70
53 Ethylbenzene	106.00	7.241	7.241	(1.074)	87047	110	22
54 m,p-Xylene(s)	106.00	7.453	7.468	(1.106)	221833	230	46
55 Bromoform	173.00	7.817	7.816	(1.160)	29086	100	20
57 Styrene	104.00	8.014	8.013	(1.189)	163949	120	24
58 o-Xylene	106.00	8.059	8.074	(1.196)	104327	120	25
59 1,1,2,2-Tetrachloroethane	83.00	8.605	8.604	(1.276)	58841	130	26
* 20 Bromochloromethane	128.00	2.120	2.119	(1.000)	72685	250	
* 31 1,4-Difluorobenzene	114.00	2.786	2.786	(1.000)	537784	250	
* 51 Chlorobenzene-d5	117.00	6.741	6.756	(1.000)	332743	250	
S 23 1,2-Dichloroethane-d4	102.00	2.362	2.362	(1.114)	15788	130	25 (R)
S 40 Toluene-d8	98.00	4.529	4.528	(0.672)	251991	120	24 (R)
S 61 Bromofluorobenzene	95.00	8.862	8.847	(1.315)	88899	120	24 (R)

#### QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.



SPL Labs:

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k122is2e.d  
Lab Smp Id: 20 PPB STD 8240S  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950502.b/kvoclp.s.m  
Misc Info:

Calibration Date: 05/02/95  
Calibration Time: 1800

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	20.77408	154816	154816	72685	-6.10
31 1,4-Difluorobenzene	31.488350	244175	976700	537784	10.12
51 Chlorobenzene-d5	51.357839	178920	715678	332743	-7.01

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.03
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.02
51 Chlorobenzene-d5	6.76	6.26	7.26	6.74	-0.22

AREA UPPER LIMIT = +100% of internal standard area.

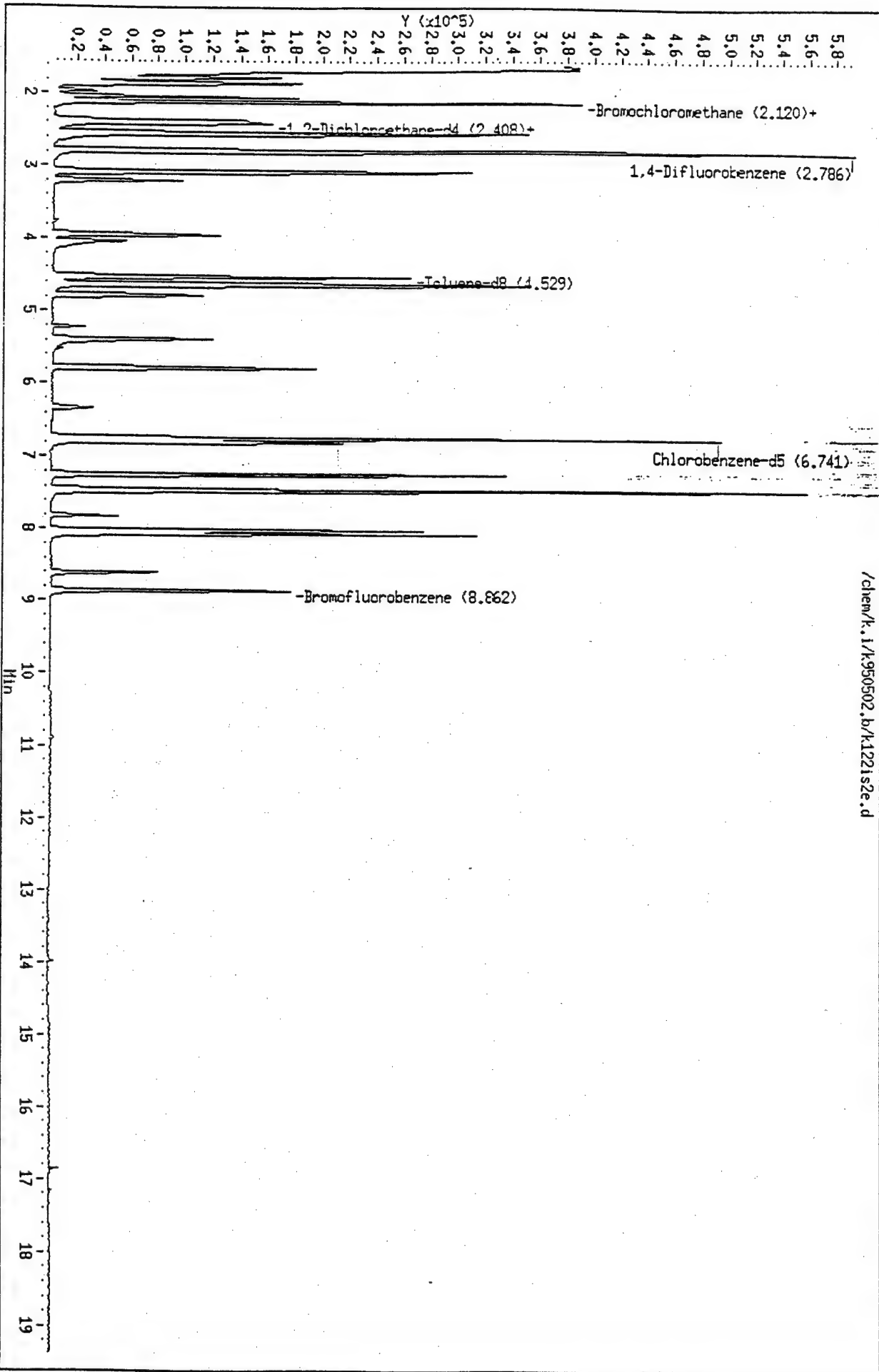
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950502.b/k1221s2e.d  
Date : 02-Nov-1995 19:54  
Client ID:  
Sample Info: 20 PPB STD 82405  
Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1  
Operator: HLM  
Column diameter: 0.25



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122cs7.d  
Lab Smp Id: 50 PPB STD 8240S  
Inj Date : 02-MAY-1995 18:00  
Operator : HLW  
Smp Info : 50 PPB STD 8240S  
Misc Info :  
Comment :  
Method : /chem/k.i/k950502.b/kvoclp.m  
Meth Date : 10-May-1995 12:23 hillery  
Cal Date : 02-MAY-1995 18:00  
Als bottle: 5  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i

Quant Type: ISTD  
Cal File: k122cs7.d

Compound Sublist: normal.sub

Compounds	QUANT	SIG						CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
								( ng)	(ug/Kg)
4 Chloromethane	50.00		1.361	1.392 (0.642)			164285	250	50
5 Vinyl Chloride	62.00		1.407	1.422 (0.664)			175774	250	50
7 Bromomethane	94.00		1.437	1.437 (0.678)			125209	250	50
6 Chloroethane	64.00		1.437	1.437 (0.678)			152163	250	50
9 Trichlorofluoromethane	100.90		1.528	1.528 (0.721)			154882	250	50
8 Acetone	58.00		1.513	1.513 (0.714)			22320	250	50 (a)
10 1,1-Dichloroethene	96.00		1.619	1.619 (0.764)			156295	250	50
11 Methylene Chloride	84.00		1.665	1.665 (0.785)			186397	250	50
M 1 1,2-Dichloroethene (total)	96.00						393739	500	100
12 Carbon Disulfide	76.00		1.710	1.710 (0.807)			613845	250	50
13 trans-1,2-Dichloroethene	96.00		1.786	1.786 (0.843)			196704	250	50
14 1,1-Dichloroethane	63.00		1.846	1.846 (0.871)			366125	250	50
16 Vinyl Acetate	43.00		1.861	1.862 (0.878)			358222	250	50
17 2-Butanone	43.00		1.968	1.952 (0.928)			174217	250	50
19 cis-1,2-Dichloroethene	96.00		2.043	2.043 (0.964)			197035	250	50
21 Chloroform	83.00		2.119	2.119 (1.000)			308907	250	50
24 1,1,1-Trichloroethane	97.00		2.392	2.392 (1.129)			245830	250	50
25 1,2-Dichloroethane	62.00		2.407	2.407 (0.864)			228647	250	50
27 Benzene	78.00		2.543	2.543 (0.913)			719698	250	50
28 Carbon Tetrachloride	117.00		2.574	2.574 (0.924)			187782	250	50
33 1,2-Dichloropropane	63.00		3.074	3.074 (1.103)			199516	250	50
34 Trichloroethene	130.00		3.089	3.089 (1.109)			170287	250	50
35 Bromodichloromethane	83.00		3.210	3.210 (1.152)			222234	250	50
15 2-Chloroethylvinylether	63.00		1.846	1.846 (0.663)			366096	250	50
38 4-Methyl-2-Pentanone	43.00		4.013	3.998 (1.441)			210082	250	50
42 cis-1,3-Dichloropropene	75.00		4.649	4.634 (1.669)			203470	250	50
37 trans-1,3-Dichloropropene	75.00		3.952	3.953 (0.585)			253995	250	50
43 Toluene	92.00		4.634	4.634 (0.686)			423416	250	50
44 1,1,2-Trichloroethane	83.00		4.786	4.771 (0.708)			114187	250	50

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL (ug/Kg)
-----	----	--	-----	-----	-----	-----	-----
45 2-Hexanone	43.00	5.377	5.347	(0.796)	184794	250	50
46 Dibromochloromethane	129.00	5.392	5.377	(0.798)	135271	250	50
48 Tetrachloroethene	164.00	5.801	5.786	(0.859)	144739	250	50
52 Chlorobenzene	112.00	6.801	6.801	(1.007)	410492	250	50
M 2 Xylene (Total)	106.00				749788	750	150
53 Ethylbenzene	106.00	7.240	7.241	(1.072)	217352	250	50
54 m,p-Xylene(s)	106.00	7.468	7.468	(1.105)	523866	500	100
55 Bromoform	173.00	7.816	7.816	(1.157)	77770	250	50
57 Styrene	104.00	8.013	8.013	(1.186)	372618	250	50
58 o-Xylene	106.00	8.074	8.074	(1.195)	225922	250	50
59 1,1,2,2-Tetrachloroethane	83.00	8.604	8.604	(1.274)	119944	250	50
* 20 Bromochloromethane	128.00	2.119	2.119	(1.000)	77408	250	
* 31 1,4-Difluorobenzene	114.00	2.786	2.786	(1.000)	488350	250	
* 51 Chlorobenzene-d5	117.00	6.756	6.756	(1.000)	357839	250	
S 23 1,2-Dichloroethane-d4	102.00	2.361	2.362	(1.114)	33202	250	50
S 40 Toluene-d8	98.00	4.528	4.528	(0.670)	553531	250	50
S 61 Bromofluorobenzene	95.00	8.862	8.847	(1.312)	199743	250	50

# QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: k.i  
 Lab File ID: k122cs7.d  
 Lab Smp Id: 50 PPB STD 8240S  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: HLW  
 Method File: /chem/k.i/k950502.b/kvoclps.m  
 Misc Info:

Calibration Date: 05/02/95  
 Calibration Time: 1800

Level: LOW  
 Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	77408	38704	154816	77408	0.00
31 1,4-Difluorobenzene	488350	244175	976700	488350	0.00
51 Chlorobenzene-d5	357839	178920	715678	357839	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.00
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.00
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.00

AREA UPPER LIMIT = +100% of internal standard area.

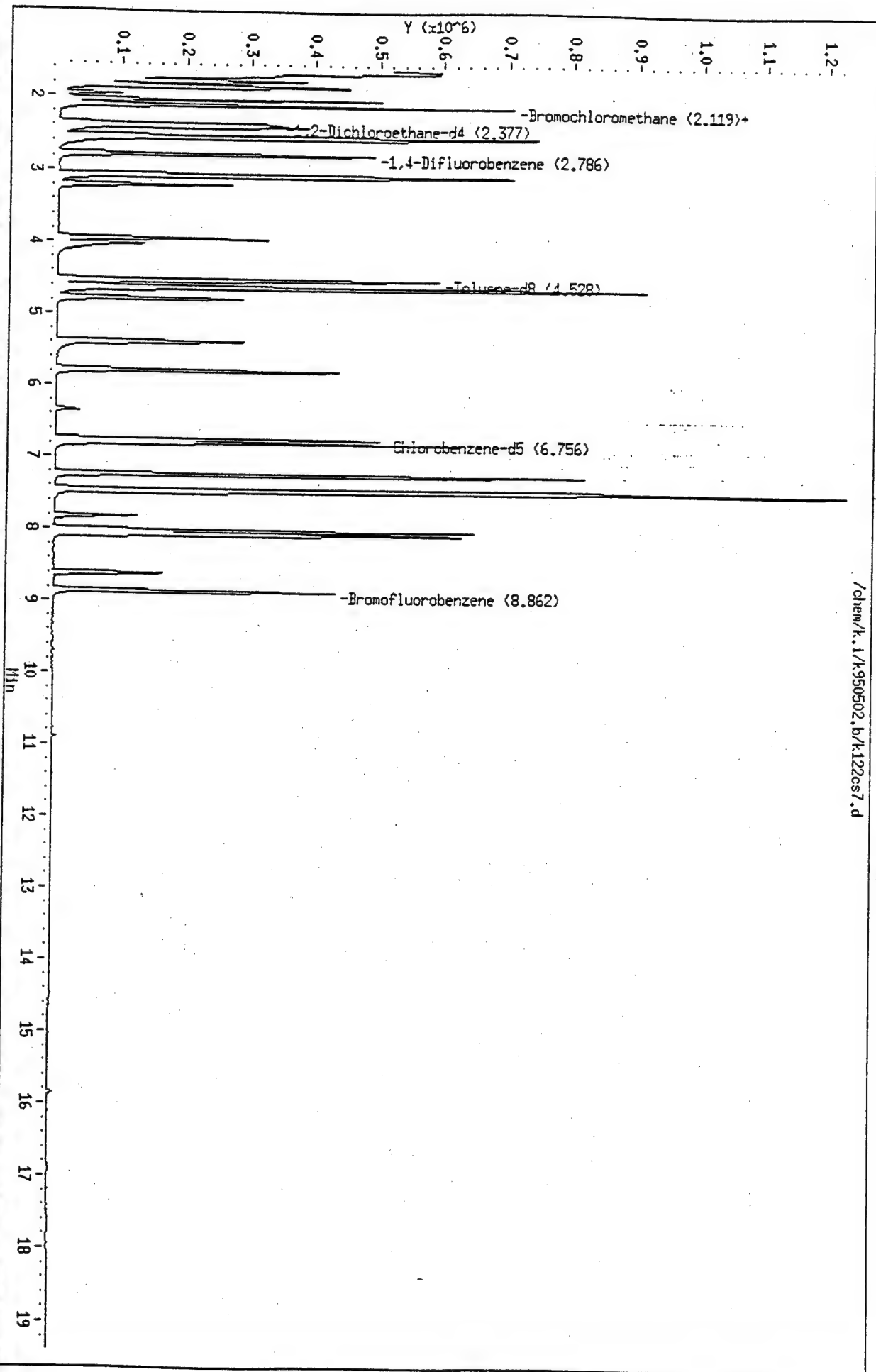
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/K950502.b/k122cs7.d  
Date : 02-MAY-1995 18:00  
Client ID:  
Sample Info: 50 PPB STD 8240S  
Column phase: 30m, hp5ms, 0.25u df

Instrument: k.i  
Operator: HLW  
Column diameter: 0.25



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122is4e.d  
Lab Smp Id: 100 PPB STD 8240S  
Inj Date : 02-MAY-1995 21:00  
Operator : HLW  
Smp Info : 100 PPB STD 8240S  
Misc Info :  
Comment :  
Method : /chem/k.i/k950502.b/kvoc1ps.m  
Meth Date : 10-May-1995 12:23 hillery  
Cal Date : 02-MAY-1995 18:00  
Als bottle: 9  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i

Quant Type: ISTD  
Cal File: k122cs7.d

Compound Sublist: normal.sub

Compounds	QUANT SIG						CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE		ON-COLUMN	FINAL
							( ng)	(ug/Kg)
4 Chloromethane	50.00	1.377	1.392	(0.650)	363004		530	100
5 Vinyl Chloride	62.00	1.422	1.422	(0.671)	371205		500	100
7 Bromomethane	94.00	1.437	1.437	(0.678)	268832		510	100
6 Chloroethane	64.00	1.437	1.437	(0.678)	320402		500	100
9 Trichlorofluoromethane	100.90	1.528	1.528	(0.721)	311832		480	96
8 Acetone	58.00	1.513	1.513	(0.714)	30386		320	65(a)
10 1,1-Dichloroethene	96.00	1.619	1.619	(0.764)	323877		500	99
11 Methylene Chloride	84.00	1.665	1.665	(0.785)	361796		460	93
M 1 1,2-Dichloroethene (total)	96.00				832625		1000	200
12 Carbon Disulfide	76.00	1.725	1.710	(0.814)	1269622		490	99
13 trans-1,2-Dichloroethene	96.00	1.786	1.786	(0.843)	407280		500	99
14 1,1-Dichloroethane	63.00	1.847	1.846	(0.871)	773432		500	100
16 Vinyl Acetate	43.00	1.862	1.862	(0.878)	679260		450	91
17 2-Butanone	43.00	1.953	1.952	(0.921)	231101		320	63
19 cis-1,2-Dichloroethene	96.00	2.043	2.043	(0.964)	425345		520	100
21 Chloroform	83.00	2.119	2.119	(1.000)	624589		480	97
24 1,1,1-Trichloroethane	97.00	2.392	2.392	(1.129)	502902		490	98
25 1,2-Dichloroethane	62.00	2.407	2.407	(0.864)	452921		480	96
27 Benzene	78.00	2.544	2.543	(0.913)	1477643		500	100
28 Carbon Tetrachloride	117.00	2.574	2.574	(0.924)	394399		510	100
33 1,2-Dichloropropane	63.00	3.074	3.074	(1.103)	373720		460	91
34 Trichloroethene	130.00	3.089	3.089	(1.109)	322170		460	92
35 Bromodichloromethane	83.00	3.210	3.210	(1.152)	411699		450	90
15 2-Chloroethylvinylether	63.00	1.847	1.846	(0.663)	773432		510	100
38 4-Methyl-2-Pentanone	43.00	4.013	3.998	(1.441)	233024		270	54
42 cis-1,3-Dichloropropene	75.00	4.635	4.634	(1.664)	382393		460	92
37 trans-1,3-Dichloropropene	75.00	3.953	3.953	(0.585)	481365		440	88
43 Toluene	92.00	4.635	4.634	(0.686)	803091		440	88
44 1,1,2-Trichloroethane	83.00	4.786	4.771	(0.708)	209676		430	85

Compounds	QUANT SIG				RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT		CN-COLUMN	FINAL
						( ng)	(ug/Kg)
-----	----	--	-----	-----	-----	-----	
45 2-Hexanone	43.00	5.377	5.347	(0.796)	110835	140	28
46 Dibromochloromethane	129.00	5.392	5.377	(0.798)	255368	440	88
48 Tetrachloroethene	164.00	5.786	5.786	(0.856)	277544	440	89
52 Chlorobenzene	112.00	6.801	6.801	(1.007)	864442	490	98
M 2 Xylene (Total)	106.00				1607895	1500	300
53 Ethylbenzene	106.00	7.241	7.241	(1.072)	458911	490	98
54 m,p-Xylene(s)	106.00	7.453	7.468	(1.103)	1088090	960	190
55 Bromoform	173.00	7.816	7.816	(1.157)	159567	480	95
57 Styrene	104.00	8.013	8.013	(1.186)	837162	520	100
58 o-Xylene	106.00	8.059	8.074	(1.193)	519805	530	110
59 1,1,2,2-Tetrachloroethane	83.00	8.604	8.604	(1.274)	253257	490	98
* 20 Bromochloromethane	128.00	2.119	2.119	(1.000)	80882	250	
* 31 1,4-Difluorobenzene	114.00	2.786	2.786	(1.000)	501386	250	
* 51 Chlorobenzene-d5	117.00	6.756	6.756	(1.000)	385585	250	
\$ 23 1,2-Dichloroethane-d4	102.00	2.362	2.362	(1.114)	73003	530	100(R)
\$ 40 Toluene-d8	98.00	4.528	4.528	(0.670)	1135233	480	95(R)
\$ 61 Bromofluorobenzene	95.00	8.847	8.847	(1.310)	358413	420	83(R)

# QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- R - Spike/Surrogate failed recovery limits.



SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k122is4e.d  
Lab Smp Id: 100 PPB STD 8240S  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW  
Method File: /chem/k.i/k950502.b/kvoc1ps.m  
Misc Info:

Calibration Date: 05/02/95  
Calibration Time: 1800

Level: LOW  
Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	77408	38704	154816	780882	4.49
31 1,4-Difluorobenzene	488350	244175	976700	501386	2.67
51 Chlorobenzene-d5	357839	178920	715678	385585	17.75

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.01
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.01
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

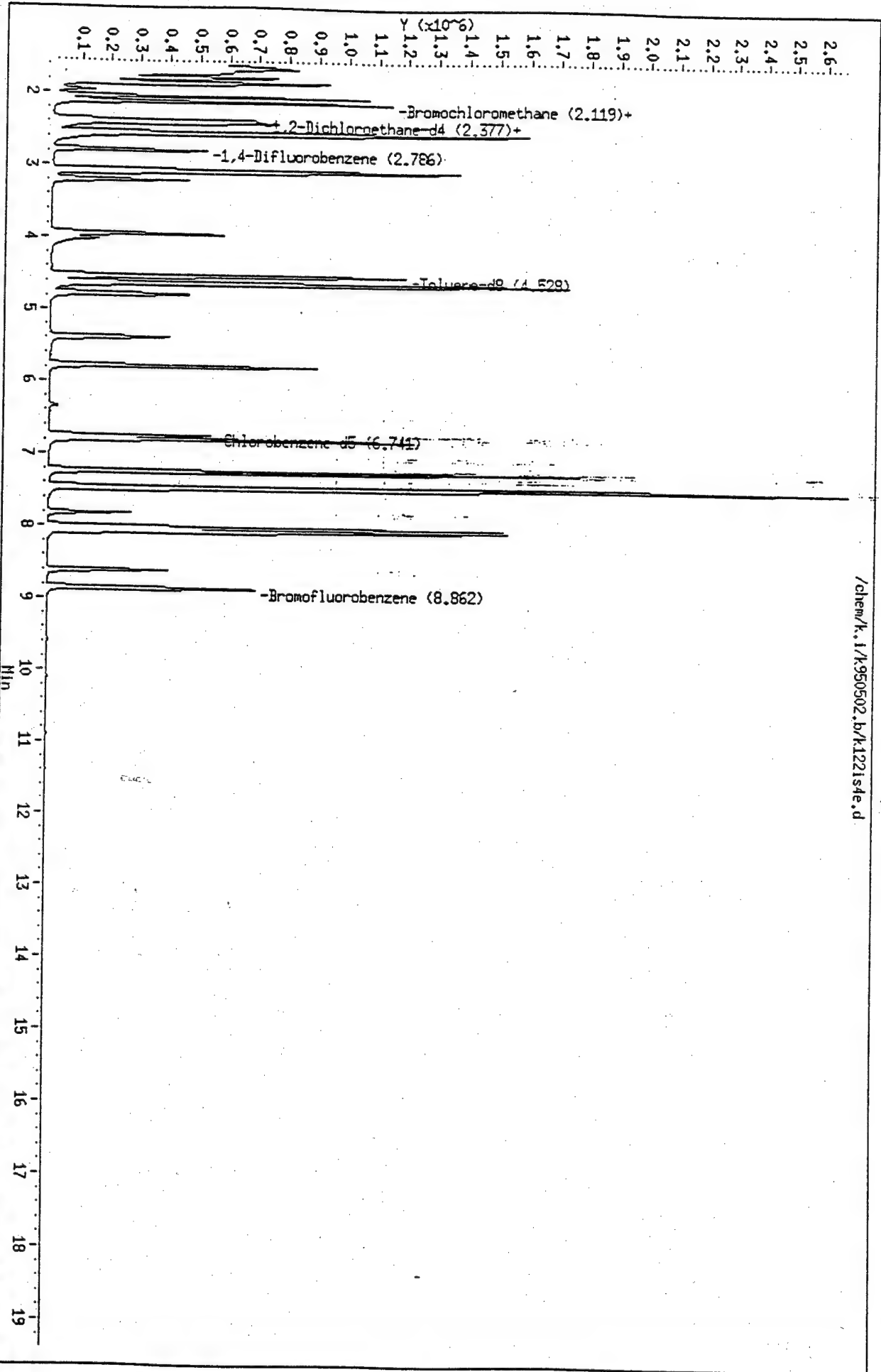
Data File: /chem/k.1/k950502.b/k1221s4e.d  
Date : 02-MAY-1995 21:00

Client ID:  
Sample Info: 100 PPB STD 82405

Column phase: 30m, Jsp5ms, 0.25u df

Instrument: k.1

Operator: HLM  
Column diameter: 0.25



SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950502.b/k122is5e.d  
Lab Smp Id: 200 PPB STD 8240S  
Inj Date : 02-MAY-1995 21:27  
Operator : HLW  
Smp Info : 200 PPB STD 8240S  
Misc Info :  
Comment :  
Method : /chem/k.i/k950502.b/kvoclp.s.m  
Meth Date : 10-May-1995 12:23 hillery  
Cal Date : 02-MAY-1995 18:00  
Als bottle: 10  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: k.i

Quant Type: ISTD

Cal File: k122cs7.d

Compound Sublist: normal

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
4 Chloromethane	50.00	1.392	1.392 (0.657)	685728	1200	230		
5 Vinyl Chloride	62.00	1.422	1.422 (0.671)	704004	1100	220		
7 Bromomethane	94.00	1.437	1.437 (0.678)	498045	1100	220		
6 Chloroethane	64.00	1.437	1.437 (0.678)	597616	1100	220		
9 Trichlorofluoromethane	100.90	1.528	1.528 (0.721)	633109	1100	230		
8 Acetone	58.00	1.513	1.513 (0.714)	58205	720	140		
10 1,1-Dichloroethene	96.00	1.619	1.619 (0.764)	593966	1000	210		
11 Methylene Chloride	84.00	1.665	1.665 (0.785)	656340	980	200		
M 1 1,2-Dichloroethene (total)	96.00			1418932	2000	400 (A)		
12 Carbon Disulfide	76.00	1.710	1.710 (0.807)	2371271	1100	210		
13 trans-1,2-Dichloroethene	96.00	1.786	1.786 (0.843)	740595	1000	210		
14 1,1-Dichloroethane	63.00	1.846	1.846 (0.871)	1330224	1000	200		
16 Vinyl Acetate	43.00	1.862	1.862 (0.878)	1063693	820	160		
17 2-Butanone	43.00	1.952	1.952 (0.921)	408178	650	130		
19 cis-1,2-Dichloroethene	96.00	2.043	2.043 (0.964)	678337	960	190		
21 Chloroform	83.00	2.119	2.119 (1.000)	1172526	1000	210		
24 1,1,1-Trichloroethane	97.00	2.392	2.392 (1.129)	991614	1100	220		
25 1,2-Dichloroethane	62.00	2.407	2.407 (0.864)	873142	960	190		
27 Benzene	78.00	2.543	2.543 (0.913)	2765913	970	190		
28 Carbon Tetrachloride	117.00	2.574	2.574 (0.924)	789468	1100	210		
33 1,2-Dichloropropane	63.00	3.074	3.074 (1.103)	731473	920	180		
34 Trichloroethene	130.00	3.089	3.089 (1.109)	628771	930	190		
35 Bromodichloromethane	83.00	3.210	3.210 (1.152)	858246	970	190		
15 2-Chloroethylvinylether	63.00	1.846	1.846 (0.663)	1330224	920	180		
38 4-Methyl-2-Pentanone	43.00	3.998	3.998 (1.435)	519380	620	120		
42 cis-1,3-Dichloropropene	75.00	4.634	4.634 (1.664)	770745	960	190		
37 trans-1,3-Dichloropropene	75.00	3.953	3.953 (0.585)	993745	1000	210		
43 Toluene	92.00	4.634	4.634 (0.686)	1575951	990	200		
44 1,1,2-Trichloroethane	83.00	4.771	4.771 (0.706)	418215	980	200		

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL (ug/Kg)
45 2-Hexanone	43.00	5.347	5.347	(0.791)	424312	610	120
46 Dibromochloromethane	129.00	5.377	5.377	(0.796)	545513	1100	220
48 Tetrachloroethene	164.00	5.786	5.786	(0.856)	541413	1000	200
52 Chlorobenzene	112.00	6.801	6.801	(1.007)	1429806	930	180
M 2 Xylene (Total)	106.00				2721696	2900	580
53 Ethylbenzene	106.00	7.241	7.241	(1.072)	803456	990	200
54 m,p-Xylene(s)	106.00	7.468	7.468	(1.105)	1743881	1800	360
55 Bromoform	173.00	7.816	7.816	(1.157)	325417	1100	220
57 Styrene	104.00	8.013	8.013	(1.186)	1679049	1200	240 (A)
58 o-Xylene	106.00	8.074	8.074	(1.195)	977815	1200	230
59 1,1,2,2-Tetrachloroethane	83.00	8.604	8.604	(1.274)	423790	940	190
* 20 Bromochloromethane	128.00	2.119	2.119	(1.000)	69736	250	
* 31 1,4-Difluorobenzene	114.00	2.786	2.786	(1.000)	484077	250	
* 51 Chlorobenzene-d5	117.00	6.756	6.756	(1.000)	335343	250	
S 23 1,2-Dichloroethane-d4	102.00	2.362	2.362	(1.114)	145292	1200	240 (AR)
S 40 Toluene-d8	98.00	4.528	4.528	(0.670)	2248228	1100	220 (AR)
S 61 Bromofluorobenzene	95.00	8.847	8.847	(1.310)	722436	960	190 (R)

#### QC Flag Legend

- A - Target compound detected but, quantitated amount exceeded maximum amount.
- R - Spike/Surrogate failed recovery limits.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: k.i  
 Lab File ID: k122is5e.d  
 Lab Smp Id: 200 PPB STD 8240S  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: HLW  
 Method File: /chem/k.i/k950502.b/kvoc1ps.m  
 Misc Info:

Calibration Date: 05/02/95  
 Calibration Time: 1800

Level: LOW  
 Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	20-77408	38704	154816	69736	-9.91
31 1,4-Difluorobenzene	488350	244175	976700	484077	-0.87
51 Chlorobenzene-d5	357839	178920	715678	335343	-6.29

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.01
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.00
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/K950502.b/K1221s5e.d

Date : 02-MAY-1995 21:27

Client ID:

Sample Info: 200 PPB STD 8240S

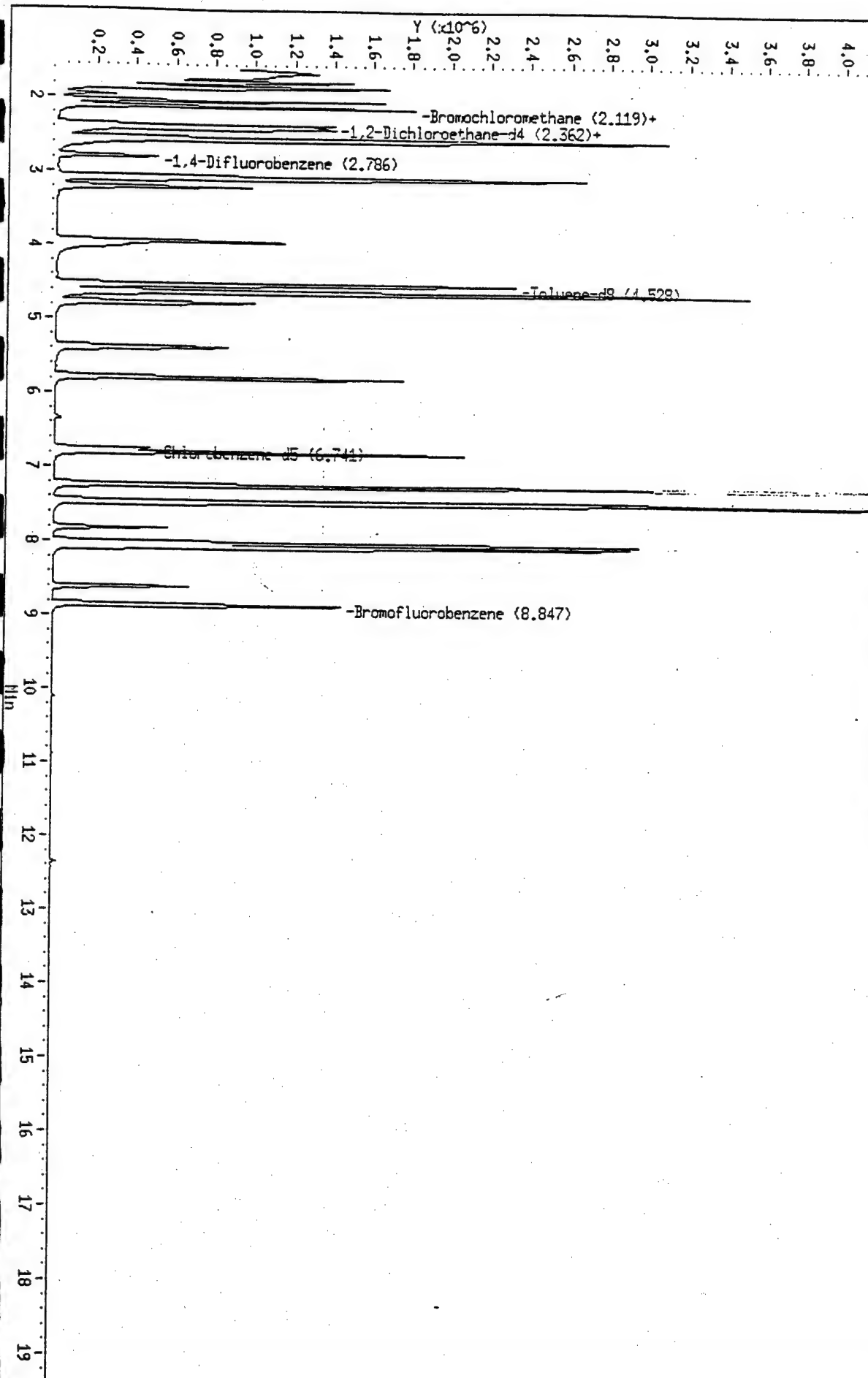
Column phase: 30m, Jp5ms, 0.25u df

Instrument: k.1

Operator: HLM

Column diameter: 0.25

/chem/k.1/K950502.b/K1221s5e.d



## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 02-MAY-1995 08:20  
 End Cal Date : 02-MAY-1995 10:09  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/1.i/1950502.b/lvoclpw.m  
 Cal Date : 02-May-1995 12:35 jimmy  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/1.i/1950502.b/l122iw1.d  
 Level 2: /chem/1.i/1950502.b/l122iw2.d  
 Level 3: /chem/1.i/1950502.b/l122iw3.d  
 Level 4: /chem/1.i/1950502.b/l122iw4.d  
 Level 5: /chem/1.i/1950502.b/l122iw5.d

Compound	50 Level 1	100 Level 2	250 Level 3	500 Level 4	1000 Level 5	RRF	% RSD
1 Chloromethane	2.18516	2.41369	2.34254	2.34459	2.27337	2.31187	3.741
2 Vinyl Chloride	1.99513	2.04224	1.97343	1.82446	1.64612	1.89627	8.535
3 Bromomethane	1.55227	1.52782	1.48024	1.46593	1.43200	1.49165	3.238
4 Chloroethane	1.17376	1.21365	1.21946	1.22653	1.18917	1.20452	1.844
7 Trichlorofluoromethane	1.08854	1.09152	1.22776	1.36602	1.69994	1.29475	19.599
8 Acetone	0.39432	0.37258	0.36915	0.40432	0.37568	0.38321	3.992
11 1,1-Dichloroethene	1.36223	1.40612	1.41890	1.45183	1.48326	1.42447	3.226
13 Methylene Chloride	1.65671	1.69764	1.70739	1.71305	1.71653	1.69826	1.431
14 Carbon Disulfide	5.47449	5.61112	5.70231	5.84509	5.92531	5.71166	3.155
15 trans-1,2-Dichloroethene	1.71472	1.76561	1.76706	1.80241	1.83084	1.77613	2.462
17 1,1-Dichloroethane	3.50970	3.57895	3.61300	3.70305	3.78693	3.63833	2.979
M 18 1,2-Dichloroethene (total)	1.79480	1.82876	1.86726	1.90995	1.94120	1.86839	3.168
19 Vinyl Acetate	6.10564	6.03371	6.03145	5.75757	5.72555	5.93078	2.962
20 2-Butanone	2.90135	2.80081	2.84705	2.72879	2.57111	2.76982	4.616
21 cis-1,2-Dichloroethene	1.87487	1.89190	1.96746	2.01748	2.05156	1.96066	3.920
24 Chloroform	3.27103	3.21705	3.24192	3.30903	3.36093	3.27999	1.730
27 1,1,1-Trichloroethane	0.44253	0.44230	0.44548	0.43804	0.44744	0.44316	0.806
28 1,2-Dichloroethane	2.68199	2.75053	2.74818	2.82655	2.81908	2.76527	2.147
30 Benzene	1.43537	1.43397	1.45211	1.42255	1.43575	1.43595	0.734
31 Carbon Tetrachloride	0.35583	0.35728	0.35871	0.36313	0.36740	0.36047	1.315
34 1,2-Dichloropropane	0.38664	0.38497	0.39262	0.39181	0.39125	0.38946	0.878
35 Trichloroethene	0.32287	0.32073	0.32503	0.32801	0.32640	0.32461	0.885
37 Bromodichloromethane	0.44319	0.43773	0.43671	0.44976	0.44872	0.44322	1.361
39 2-Chloroethylvinylether	0.08185	0.08605	0.09305	0.10062	0.10424	0.09316	10.137
40 4-Methyl-2-Pentanone	0.66423	0.70332	0.71347	0.70841	0.67235	0.69236	3.242
41 cis-1,3-Dichloropropene	0.53353	0.53817	0.54637	0.55710	0.55961	0.54696	2.087
42 trans-1,3-Dichloropropene	0.47718	0.47459	0.48403	0.49488	0.50148	0.48643	2.365

## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 02-MAY-1995 08:20  
 End Cal Date : 02-MAY-1995 10:09  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/1.i/1950502.b/lvoclpw.m  
 Cal Date : 02-May-1995 12:35 jimmy  
 Curve Type : Average

Compound	50 Level 1	100 Level 2	250 Level 3	500 Level 4	1000 Level 5	RRF	% RSD
44 Toluene	0.97364	0.98226	1.00040	1.00583	0.99789	0.99200	1.360
45 1,1,2-Trichloroethane	0.26649	0.27347	0.26844	0.26731	0.26716	0.26858	1.052
46 2-Hexanone	0.73012	0.78507	0.85353	0.86654	0.80964	0.80898	6.796
47 Dibromochloromethane	0.30896	0.30152	0.30816	0.31520	0.32124	0.31102	2.409
49 Tetrachloroethene	0.38483	0.37675	0.37992	0.37393	0.37735	0.37856	1.084
52 Chlorobenzene	0.99206	0.99114	1.00706	1.00122	1.00558	0.99941	0.746
M 53 Xylene (Total)	0.62087	0.61750	0.63644	0.63397	0.63579	0.62891	1.432
54 Ethylbenzene	0.50369	0.50586	0.51839	0.52425	0.52378	0.51520	1.906
55 m,p-Xylene(s)	0.62893	0.61946	0.64133	0.64047	0.64189	0.63442	1.565
56 Bromoform	0.31406	0.29539	0.31041	0.31825	0.32211	0.31204	3.300
57 Styrene	0.86874	0.94132	1.02509	1.04868	1.06044	0.98886	8.263
59 o-Xylene	0.60474	0.61359	0.62664	0.62097	0.62359	0.61791	1.425
60 1,1,2,2-Tetrachloroethane	0.49941	0.48995	0.52208	0.50938	0.48460	0.50108	3.007
\$ 26 1,2-Dichloroethane-d4	0.41997	0.42049	0.41364	0.42322	0.42852	0.42117	1.283
\$ 43 Toluene-d8	1.42906	1.37537	1.39126	1.38068	1.38476	1.39222	1.537
\$ 61 Bromofluorobenzene	0.51077	0.50759	0.52461	0.52897	0.53300	0.52099	2.157



Data File: /chem/1.i/1950502.b/l122iw1.d  
Report Date: 02-May-1995 11:42

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/l122iw1.d

Lab Smp Id:

Inj Date : 02-MAY-1995 08:20

Operator : JC

Inst ID: 1.i

Smp Info : 10 UG-L STD-8240W/1X

Misc Info : L122W1//L122IW3

Comment :

Method : /chem/1.i/1950502.b/lvoclpw.m

Meth Date : 02-May-1995 11:42 jimmy

Quant Type: ISTD

Cal Date : 02-MAY-1995 09:14

Cal File: l122iw3.d

Als bottle: 2

Calibration Sample, Level: 1

Oil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
1 Chloromethane	50.00	1.760	1.760	(0.337)	23768	50	47(a)
2 Vinyl Chloride	62.00	1.876	1.876	(0.359)	21701	50	53
3 Bromomethane	94.00	2.116	2.116	(0.406)	16884	50	52
4 Chloroethane	64.00	2.188	2.188	(0.419)	12767	50	49
7 Trichlorofluoromethane	101.00	2.535	2.535	(0.486)	11840	50	42
8 Acetone	58.00	2.598	2.598	(0.498)	4289	50	51(a)
11 1,1-Dichloroethene	96.00	2.990	2.990	(0.573)	14817	50	48
13 Methylene Chloride	84.00	3.239	3.239	(0.621)	18020	50	49
18 1,2-Dichloroethene (total)	96.00				39044	100	96
14 Carbon Disulfide	76.00	3.355	3.355	(0.643)	59546	50	48
15 trans-1,2-Dichloroethene	96.00	3.819	3.819	(0.732)	18651	50	48
17 1,1-Dichloroethane	63.00	4.149	4.149	(0.795)	38175	50	48
19 Vinyl Acetate	43.00	4.247	4.247	(0.814)	66411	50	51
20 2-Butanone	43.00	4.612	4.612	(0.884)	31558	50	52(a)
21 cis-1,2-Dichloroethene	96.00	4.951	4.951	(0.949)	20393	50	48
24 Chloroform	83.00	5.227	5.227	(1.002)	35579	50	50
27 1,1,1-Trichloroethane	97.00	6.012	6.012	(0.869)	25362	50	50
28 1,2-Dichloroethane	62.00	6.101	6.101	(1.169)	29172	50	48
30 Benzene	78.00	6.466	6.466	(0.934)	82263	50	50
31 Carbon Tetrachloride	117.00	6.484	6.484	(0.937)	20393	50	49
34 1,2-Dichloropropane	63.00	7.447	7.447	(1.076)	22159	50	50
35 Trichloroethene	130.00	7.482	7.482	(1.081)	18504	50	50
37 Bromodichloromethane	83.00	7.670	7.670	(1.108)	25400	50	50
39 2-Chloroethylvinylether	63.00	8.276	8.276	(1.196)	4691	50	44(a)
40 4-Methyl-2-Pentanone	43.00	8.499	8.499	(1.228)	38068	50	48
41 cis-1,3-Dichloropropene	75.00	8.534	8.534	(1.233)	30577	50	49
42 trans-1,3-Dichloropropene	75.00	9.158	9.158	(1.323)	27348	50	49
44 Toluene	92.00	9.247	9.247	(0.833)	43464	50	49
45 1,1,2-Trichloroethane	83.00	9.337	9.337	(1.349)	15273	50	50

Compounds	QUANT SIG		RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
	MASS						CAL-AMT ( ng)	ON-COL ( ng)
5 2-Hexanone	43.00		9.702	9.702	(0.874)	32593	50	45 (a)
7 Dibromochloromethane	129.00		9.961	9.961	(1.439)	17707	50	50
49 Tetrachloroethene	164.00		10.308	10.308	(0.929)	17179	50	51
52 Chlorobenzene	112.00		11.146	11.146	(1.004)	44286	50	50
3 Xylene (Total)	106.00					83148	150	150
4 Ethylbenzene	106.00		11.449	11.449	(1.031)	22485	50	49
55 m,p-Xylene(s)	106.00		11.610	11.610	(1.046)	56152	100	99
56 Bromoform	173.00		12.029	12.029	(1.083)	14020	50	50
7 Styrene	104.00		12.082	12.082	(1.088)	38781	50	44
9 o-Xylene	106.00		12.136	12.136	(1.093)	26996	50	49
60 1,1,2,2-Tetrachloroethane	83.00		12.483	12.483	(1.124)	22294	50	50
3 Bromochloromethane	128.00		5.218	5.218	(1.000)	54385	250	
2 1,4-Difluorobenzene	114.00		6.921	6.921	(1.000)	286556	250	
50 Chlorobenzene-d5	117.00		11.101	11.101	(1.000)	223203	250	
26 1,2-Dichloroethane-d4	102.00		5.994	5.994	(1.149)	4568	50	50
3 Toluene-d8	98.00		9.149	9.149	(0.824)	63794	50	51
1 Bromofluorobenzene	95.00		12.777	12.777	(1.151)	22801	50	49

#### Flag Legend

- Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: l122iw1.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Disc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914

Level: LOW  
Sample Type: WATER

COMPOUND =====	STANDARD =====	AREA LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
23 Bromochloromethane	57465	28732	114930	54385	-5.36
32 1,4-Difluorobenzene	309137	154568	618274	286556	-7.30
50 Chlorobenzene-d5	240326	120163	480652	223203	-7.12

COMPOUND =====	STANDARD =====	RT LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
23 Bromochloromethane	5.22	4.72	5.72	5.22	0.02
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.92	0.02
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.01

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950502.b/11221w1.d  
Date: 02-MAY-1995 08:20

Client ID:

Sample Info: 10 UG-L STD-8240M/1X

Purge Volume: 5.0

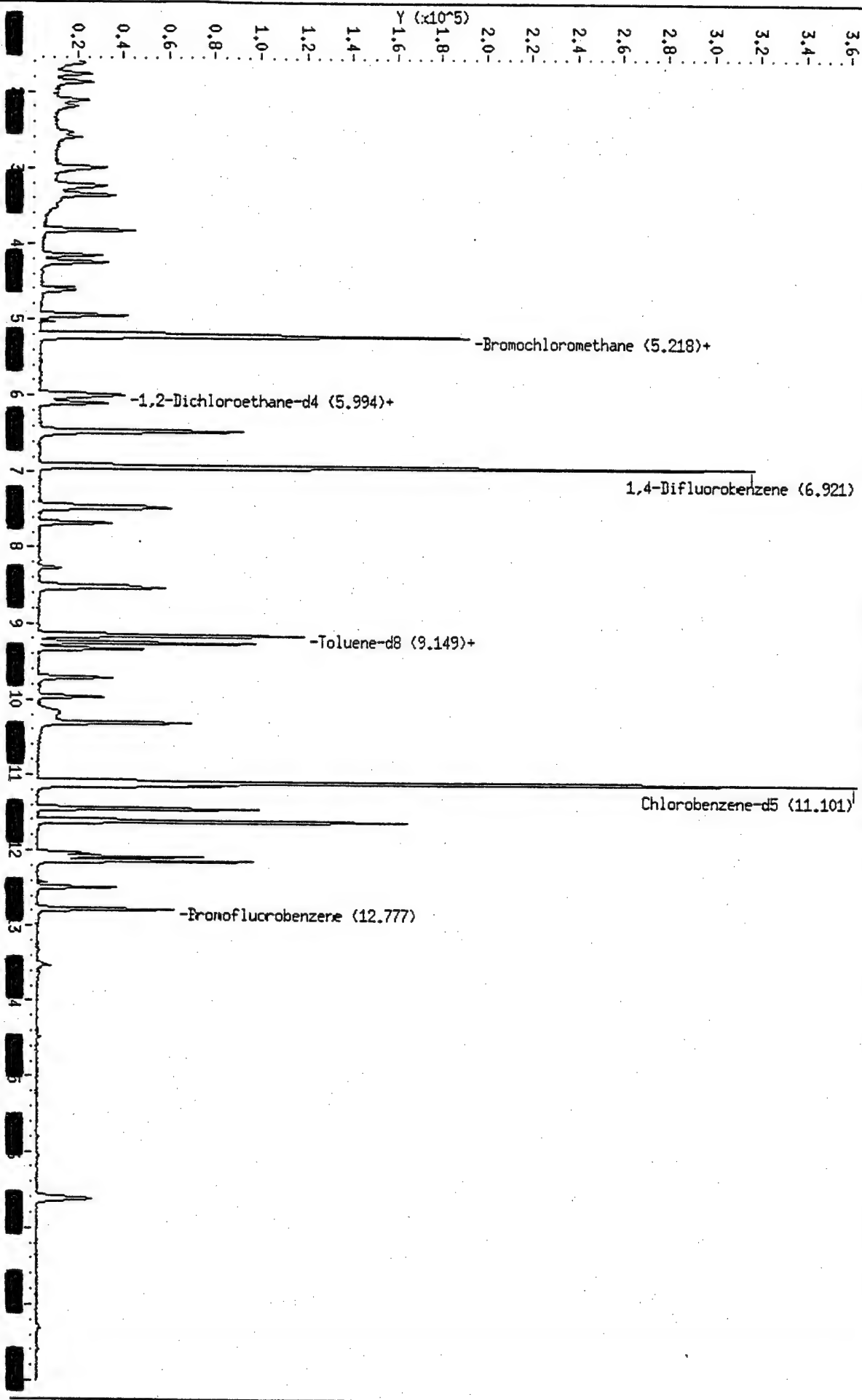
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950502.b/11221w1.d



Data File: /chem/1.i/1950502.b/l122iw2.d  
Report Date: 02-May-1995 11:42

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/l122iw2.d

Lab Smp Id:

Inj Date : 02-MAY-1995 08:47

Operator : JC

Smp Info : 20 UG-L STD-8240W/1X

Misc Info : L122W1//L122IW3

Comment :

Method : /chem/1.i/1950502.b/lvoclpw.m

Method Date : 02-May-1995 11:42 jimmy

Cal Date : 02-MAY-1995 09:14

als bottle: 3

il Factor: 1.000

ntegrator: HP RTE

arget Version: 3.10

Inst ID: 1.i

Quant Type: ISTD

Cal File: l122iw3.d

Calibration Sample, Level: 2

Compound Sublist: normal.sub

Compounds	QUANT SIG			AMOUNTS		
	MASS	RT	EXP RT REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
1 Chloromethane	50.00	1.764	1.764 (0.338)	55117	100	100
2 Vinyl Chloride	62.00	1.880	1.880 (0.361)	46635	100	110
3 Bromomethane	94.00	2.112	2.112 (0.405)	34888	100	100
4 Chloroethane	64.00	2.183	2.183 (0.419)	27714	100	100
7 Trichlorofluoromethane	101.00	2.531	2.531 (0.485)	24925	100	84
8 Acetone	58.00	2.593	2.593 (0.497)	8508	100	97(a)
11 1,1-Dichloroethene	96.00	2.994	2.994 (0.574)	32109	100	99
13 Methylene Chloride	84.00	3.235	3.235 (0.620)	38766	100	100
18 1,2-Dichloroethene (total)	96.00			83520	200	200
14 Carbon Disulfide	76.00	3.360	3.360 (0.644)	128131	100	98
15 trans-1,2-Dichloroethene	96.00	3.814	3.814 (0.732)	40318	100	99
17 1,1-Dichloroethane	63.00	4.153	4.153 (0.797)	81726	100	98
19 Vinyl Acetate	43.00	4.251	4.251 (0.815)	137781	100	100
20 2-Butanone	43.00	4.617	4.617 (0.885)	63957	100	100
21 cis-1,2-Dichloroethene	96.00	4.955	4.955 (0.950)	43202	100	96
24 Chloroform	83.00	5.232	5.232 (1.003)	73462	100	98
27 1,1,1-Trichloroethane	97.00	6.016	6.016 (0.869)	54178	100	100
28 1,2-Dichloroethane	62.00	6.105	6.105 (1.171)	62809	100	99
30 Benzene	78.00	6.462	6.462 (0.933)	175650	100	100
31 Carbon Tetrachloride	117.00	6.489	6.489 (0.937)	43764	100	99
34 1,2-Dichloropropane	63.00	7.451	7.451 (1.076)	47156	100	99
35 Trichloroethene	130.00	7.478	7.478 (1.080)	39287	100	99
37 Bromodichloromethane	83.00	7.674	7.674 (1.108)	53619	100	99
39 2-Chloroethylvinylether	63.00	8.271	8.271 (1.194)	10541	100	92
40 4-Methyl-2-Pentanone	43.00	8.503	8.503 (1.228)	86151	100	100
41 cis-1,3-Dichloropropene	75.00	8.539	8.539 (1.233)	65921	100	98
42 trans-1,3-Dichloropropene	75.00	9.163	9.163 (1.323)	58133	100	98
44 Toluene	92.00	9.252	9.252 (0.834)	95391	100	99
45 1,1,2-Trichloroethane	83.00	9.332	9.332 (1.348)	33498	100	100

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
5 2-Hexanone	43.00	9.707	9.707	(0.875)	76241	100	97
7 Dibromochloromethane	129.00	9.956	9.956	(1.438)	36934	100	97
49 Tetrachloroethene	164.00	10.304	10.304	(0.928)	36588	100	100
52 Chlorobenzene	112.00	11.142	11.142	(1.004)	96253	100	99
1 Xylene (Total)	106.00				179904	300	290
Ethylbenzene	106.00	11.445	11.445	(1.031)	49126	100	98
55 m,p-Xylene(s)	106.00	11.614	11.614	(1.047)	120316	200	200
56 Bromoform	173.00	12.033	12.033	(1.084)	28686	100	95
7 Styrene	104.00	12.078	12.078	(1.088)	91415	100	95
53 o-Xylene	106.00	12.140	12.140	(1.094)	59588	100	99
60 1,1,2,2-Tetrachloroethane	83.00	12.488	12.488	(1.125)	47581	100	98
Bromochloromethane	128.00	5.214	5.214	(1.000)	57088	250	
1,4-Difluorobenzene	114.00	6.925	6.925	(1.000)	306230	250	
50 Chlorobenzene-d5	117.00	11.097	11.097	(1.000)	242784	250	
26 1,2-Dichloroethane-d4	102.00	5.989	5.989	(1.149)	9602	100	100
Toluene-d8	98.00	9.145	9.145	(0.824)	133567	100	99
Bromofluorobenzene	95.00	12.773	12.773	(1.151)	49294	100	97

# Flag Legend

- Target compound detected but, quantitated amount  
 Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: l122iw2.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Disc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	57465	28732	114930	57088	-0.66
32 1,4-Difluorobenzene	309137	154568	618274	306230	-0.94
50 Chlorobenzene-d5	240326	120163	480652	242784	1.02

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.21	-0.06
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.93	0.08
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950502.b/11221w2.d  
Date : 02-MAY-1995 08:47

Client ID:

Sample Info: 20 UG-L STD-8240M/1X

Purge Volume: 5.0

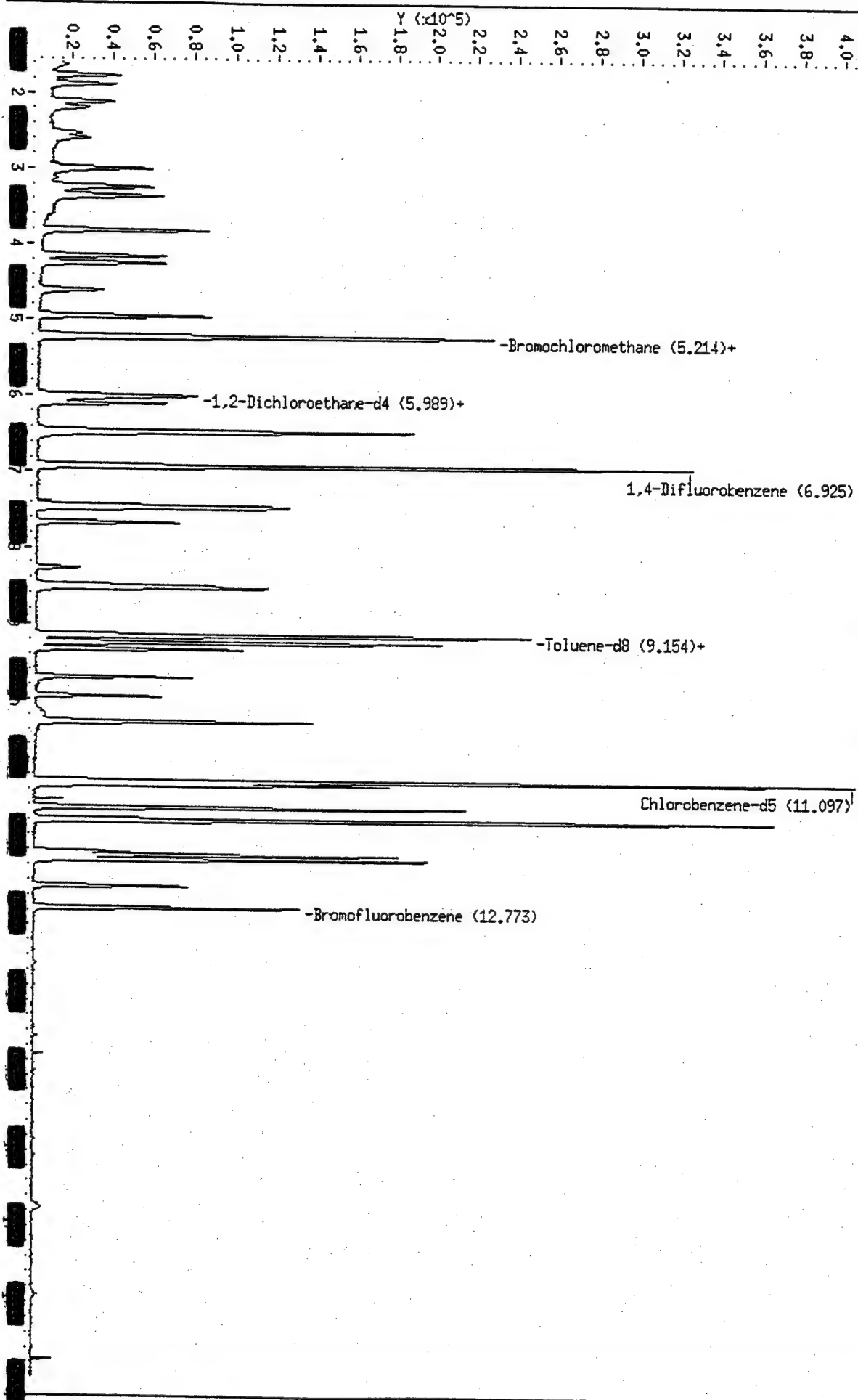
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950502.b/11221w2.d





SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/1122iw3.d

Lab Smp Id:

Inj Date : 02-MAY-1995 09:14

Operator : JC

Inst ID: 1.i

Smp Info : 50 UG-L STD-8240W/1X

Misc Info : L122W1//L122IW3

Comment :

Method : /chem/1.i/1950502.b/lvoclpw.m

Meth Date : 02-May-1995 11:42 jimmy

Quant Type: ISTD

Cal Date : 02-MAY-1995 09:14

Cal File: 1122iw3.d

als bottle: 4

Calibration Sample, Level: 3

Oil Factor: 1.000

Integrator: HP RTE

Compound Sublist: normal.sub

Target Version: 3.10

Compounds	QUANT SIG				RESPONSE	AMOUNTS	
	MASS	RT	EXP RT	REL RT		CAL-AMT ( ng)	ON-COL ( ng)
1 Chloromethane	50.00	1.776	1.776	(0.340)	134614	250	250
2 Vinyl Chloride	62.00	1.883	1.883	(0.361)	113403	250	260
3 Bromomethane	94.00	2.115	2.115	(0.405)	85062	250	250
4 Chloroethane	64.00	2.195	2.195	(0.421)	70076	250	250
7 Trichlorofluoromethane	101.00	2.534	2.534	(0.486)	70553	250	240
8 Acetone	58.00	2.597	2.597	(0.498)	21213	250	240 (a)
11 1,1-Dichloroethene	96.00	2.998	2.998	(0.575)	81537	250	250
13 Methylene Chloride	84.00	3.238	3.238	(0.621)	98115	250	250
18 1,2-Dichloroethene (total)	96.00				214604	500	500
14 Carbon Disulfide	76.00	3.363	3.363	(0.645)	327683	250	250
15 trans-1,2-Dichloroethene	96.00	3.818	3.818	(0.732)	101544	250	250
17 1,1-Dichloroethane	63.00	4.156	4.156	(0.797)	207621	250	250
19 Vinyl Acetate	43.00	4.246	4.246	(0.814)	346597	250	250
20 2-Butanone	43.00	4.611	4.611	(0.884)	163606	250	260
21 cis-1,2-Dichloroethene	96.00	4.959	4.959	(0.950)	113060	250	250
24 Chloroform	83.00	5.235	5.235	(1.003)	186297	250	250
27 1,1,1-Trichloroethane	97.00	6.019	6.019	(0.870)	137715	250	250
28 1,2-Dichloroethane	62.00	6.100	6.100	(1.169)	157924	250	250
30 Benzene	78.00	6.465	6.465	(0.934)	448900	250	250
31 Carbon Tetrachloride	117.00	6.492	6.492	(0.938)	110889	250	250
34 1,2-Dichloropropane	63.00	7.446	7.446	(1.076)	121374	250	250
35 Trichloroethene	130.00	7.481	7.481	(1.081)	100479	250	250
37 Bromodichloromethane	83.00	7.677	7.677	(1.109)	135002	250	250
39 2-Chloroethylvinylether	63.00	8.275	8.275	(1.196)	28765	250	250
40 4-Methyl-2-Pentanone	43.00	8.498	8.498	(1.228)	220559	250	260
41 cis-1,3-Dichloropropene	75.00	8.533	8.533	(1.233)	168904	250	250
42 trans-1,3-Dichloropropene	75.00	9.166	9.166	(1.325)	149633	250	250
44 Toluene	92.00	9.246	9.246	(0.833)	240421	250	250
45 1,1,2-Trichloroethane	83.00	9.327	9.327	(1.348)	82986	250	250

pounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
2-Hexanone	43.00	9.701	9.701	(0.874)	205126	250	260
Dibromochloromethane	129.00	9.959	9.959	(1.439)	95265	250	250
49 Tetrachloroethene	164.00	10.307	10.307	(0.929)	91305	250	250
52 Chlorobenzene	112.00	11.145	11.145	(1.004)	242022	250	250
Xylene (Total)	106.00				458856	750	760
Ethylbenzene	106.00	11.448	11.448	(1.031)	124583	250	250
55 m,p-Xylene(s)	106.00	11.609	11.609	(1.046)	308258	500	500
Bromoform	173.00	12.027	12.027	(1.083)	74600	250	250
Styrene	104.00	12.081	12.081	(1.088)	246356	250	260
59 o-Xylene	106.00	12.134	12.134	(1.093)	150598	250	250
60 1,1,2,2-Tetrachloroethane	83.00	12.482	12.482	(1.124)	125470	250	260
Bromochloromethane	128.00	5.217	5.217	(1.000)	57465	250	
1,4-Difluorobenzene	114.00	6.920	6.920	(1.000)	309137	250	
50 Chlorobenzene-d5	117.00	11.100	11.100	(1.000)	240326	250	
26 1,2-Dichloroethane-d4	102.00	5.993	5.993	(1.149)	23770	250	240
Toluene-d8	98.00	9.148	9.148	(0.824)	334357	250	250
Bromofluorobenzene	95.00	12.776	12.776	(1.151)	126078	250	250

# Flag Legend

- Target compound detected but, quantitated amount  
 Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1122iw3.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Misc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914

Level: LOW  
Sample Type: WATER

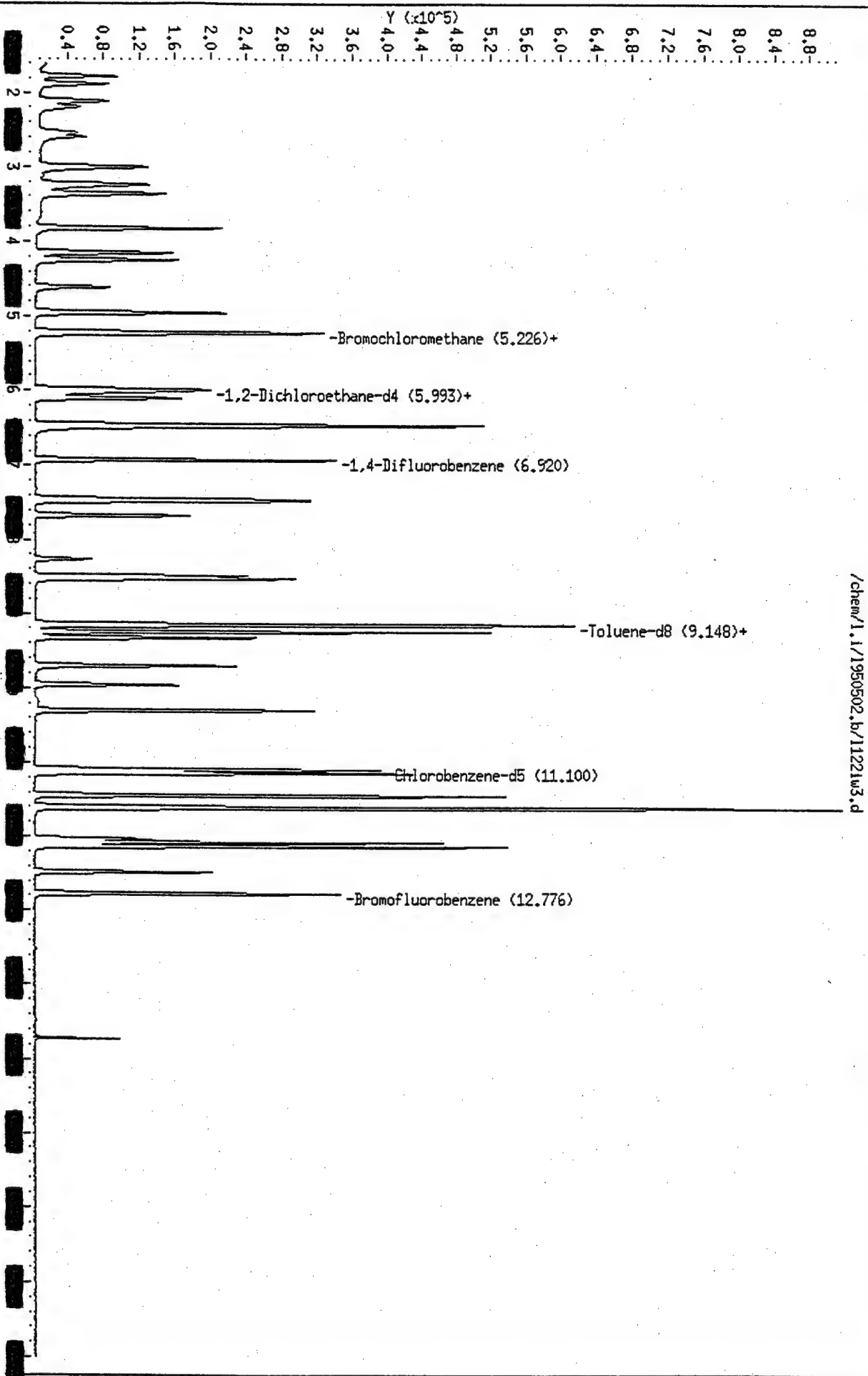
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	57465	28732	114930	57465	0.00
32 1,4-Difluorobenzene	309137	154568	618274	309137	0.00
50 Chlorobenzene-d5	240326	120163	480652	240326	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.22	0.00
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.92	0.00
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950502.b/11221w3.d  
 Date : 02-MAY-1995 09:14  
 Client ID:  
 Sample Info: 50 UC-1 STD-8240N/1X  
 Purge Volume: 5.0  
 Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1  
 Operator: JC  
 Column diameter: 0.25



SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/l122iw4.d  
Lab Smp Id:   
Inj Date : 02-MAY-1995 09:41  
Operator : JC  
Smp Info : 100 UG-L STD-8240W/1X  
Misc Info : L122W1//L122IW3  
Comment :   
Method : /chem/1.i/1950502.b/lvoclpw.m  
Meth Date : 02-May-1995 11:42 jimmy  
Cal Date : 02-MAY-1995 09:14  
Als bottle: 5  
Oil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: 1.i  
Quant Type: ISTD  
Cal File: l122iw3.d  
Calibration Sample, Level: 4  
Compound Sublist: normal.sub

Compounds	QUANT SIG			RESPONSE	AMOUNTS	
	MASS	RT	EXP RT REL RT		CAL-AMT ( ng)	ON-COL ( ng)
1 Chloromethane	50.00	1.776	1.776 (0.340)	267462	500	510
2 Vinyl Chloride	62.00	1.892	1.892 (0.362)	208127	500	480
3 Bromomethane	94.00	2.124	2.124 (0.406)	167228	500	490
4 Chloroethane	64.00	2.195	2.195 (0.420)	139918	500	510
7 Trichlorofluoromethane	101.00	2.552	2.552 (0.488)	155830	500	530
8 Acetone	58.00	2.605	2.605 (0.498)	46123	500	530
11 1,1-Dichloroethene	96.00	3.006	3.006 (0.575)	165619	500	510
13 Methylene Chloride	84.00	3.247	3.247 (0.621)	195418	500	500
18 1,2-Dichloroethene (total)	96.00			435758	1000	1000
14 Carbon Disulfide	76.00	3.372	3.372 (0.645)	666785	500	510
15 trans-1,2-Dichloroethene	96.00	3.826	3.826 (0.732)	205612	500	510
17 1,1-Dichloroethane	63.00	4.165	4.165 (0.797)	422429	500	510
19 Vinyl Acetate	43.00	4.254	4.254 (0.814)	656801	500	480
20 2-Butanone	43.00	4.620	4.620 (0.884)	311290	500	490
21 cis-1,2-Dichloroethene	96.00	4.967	4.967 (0.951)	230146	500	510
24 Chloroform	83.00	5.244	5.244 (1.003)	377481	500	500
27 1,1,1-Trichloroethane	97.00	6.028	6.028 (0.870)	274410	500	490
28 1,2-Dichloroethane	62.00	6.108	6.108 (1.169)	322441	500	510
30 Benzene	78.00	6.474	6.474 (0.934)	891151	500	500
31 Carbon Tetrachloride	117.00	6.492	6.492 (0.937)	227482	500	500
34 1,2-Dichloropropane	63.00	7.454	7.454 (1.076)	245448	500	500
35 Trichloroethene	130.00	7.490	7.490 (1.081)	205482	500	500
37 Bromodichloromethane	83.00	7.677	7.677 (1.108)	281748	500	510
39 2-Chloroethylvinylether	63.00	8.274	8.274 (1.194)	63033	500	540
40 4-Methyl-2-Pentanone	43.00	8.497	8.497 (1.226)	443781	500	510
41 cis-1,3-Dichloropropene	75.00	8.542	8.542 (1.233)	348996	500	510
42 trans-1,3-Dichloropropene	75.00	9.166	9.166 (1.323)	310015	500	510
44 Toluene	92.00	9.255	9.255 (0.834)	495230	500	510
45 1,1,2-Trichloroethane	83.00	9.335	9.335 (1.347)	167456	500	500

ounds	QUANT SIG			RESPONSE	AMOUNTS	
	MASS	RT	EXP RT REL RT		CAL-AMT ( ng)	ON-COL ( ng)
46 2-Hexanone	43.00	9.701	9.701 (0.874)	426649	500	540
7 Dibromochloromethane	129.00	9.959	9.959 (1.437)	197453	500	510
9 Tetrachloroethene	164.00	10.307	10.307 (0.929)	184108	500	490
52 Chlorobenzene	112.00	11.145	11.145 (1.004)	492961	500	500
53 Xylene (Total)	106.00			936418	1500	1500
4 Ethylbenzene	106.00	11.448	11.448 (1.031)	258120	500	510
55 m,p-Xylene(s)	106.00	11.617	11.617 (1.047)	630678	1000	1000
56 Bromoform	173.00	12.036	12.036 (1.084)	156693	500	510
7 Styrene	104.00	12.081	12.081 (1.088)	516328	500	530
9 o-Xylene	106.00	12.134	12.134 (1.093)	305740	500	500
60 1,1,2,2-Tetrachloroethane	83.00	12.482	12.482 (1.124)	250796	500	510
23 Bromochloromethane	128.00	5.226	5.226 (1.000)	57038	250	
2 1,4-Difluorobenzene	114.00	6.928	6.928 (1.000)	313223	250	
0 Chlorobenzene-d5	117.00	11.100	11.100 (1.000)	246179	250	
26 1,2-Dichloroethane-d4	102.00	5.992	5.992 (1.147)	48279	500	500
43 Toluene-d8	98.00	9.148	9.148 (0.824)	679788	500	500
1 Bromofluorobenzene	95.00	12.776	12.776 (1.151)	260441	500	510

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1122iw4.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Disc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	57465	28732	114930	57038	-0.74
32 1,4-Difluorobenzene	309137	154568	618274	313223	1.32
50 Chlorobenzene-d5	240326	120163	480652	246179	2.44

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.23	0.16
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.93	0.12
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950502.b/11221w4.d  
Date : 02-MAY-1995 09:41

Client ID:

Sample Info: 100 UG-L STD-8240M/1X

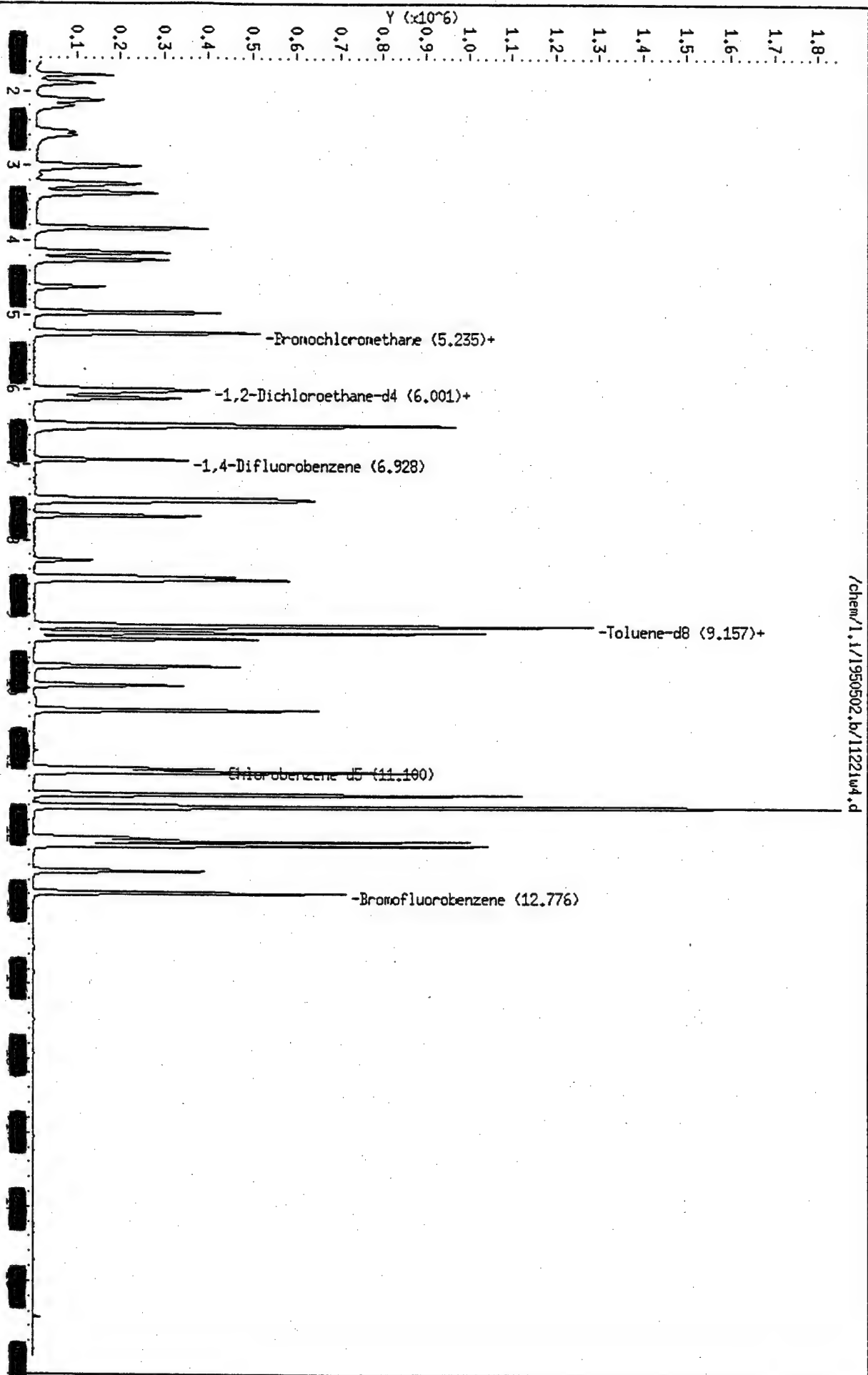
Purge Volume: 5.0

Column phase: 30m,hp5ms,0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25





SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950502.b/l122iw5.d  
Lab Smp Id:  
Inj Date : 02-MAY-1995 10:09  
Operator : JC  
Smp Info : 200 UG-L STD-8240W/1X  
Misc Info : L122W1//L122IW3  
Comment :  
Method : /chem/1.i/1950502.b/lvoclpw.m  
Meth Date : 02-May-1995 11:43 jimmy  
Cal Date : 02-MAY-1995 09:14  
Als bottle: 6  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: 1.i

Quant Type: ISTD  
Cal File: l122iw3.d  
Calibration Sample, Level: 5  
Compound Sublist: normal.sub

Compounds	QUANT SIG						AMOUNTS	
		MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
							( ng)	( ng)
-----	----	--	-----	-----	-----	-----	-----	
1 Chloromethane	50.00	1.774	1.774	(0.340)	496676	1000	980	
2 Vinyl Chloride	62.00	1.881	1.881	(0.360)	359637	1000	870	
3 Bromomethane	94.00	2.122	2.122	(0.406)	312858	1000	960	
4 Chloroethane	64.00	2.185	2.185	(0.418)	259806	1000	990	
7 Trichlorofluoromethane	101.00	2.550	2.550	(0.488)	371395	1000	1300(A)	
8 Acetone	58.00	2.603	2.603	(0.498)	82078	1000	980	
11 1,1-Dichloroethene	96.00	2.996	2.996	(0.573)	324057	1000	1000	
13 Methylene Chloride	84.00	3.236	3.236	(0.619)	375020	1000	1000	
18 1,2-Dichloroethene (total)	96.00				848211	2000	2100(A)	
14 Carbon Disulfide	76.00	3.361	3.361	(0.643)	1294538	1000	1000	
15 trans-1,2-Dichloroethene	96.00	3.825	3.825	(0.732)	399994	1000	1000	
17 1,1-Dichloroethane	63.00	4.154	4.154	(0.795)	827354	1000	1000	
19 Vinyl Acetate	43.00	4.253	4.253	(0.814)	1250896	1000	960	
20 2-Butanone	43.00	4.609	4.609	(0.882)	561725	1000	930	
21 cis-1,2-Dichloroethene	96.00	4.957	4.957	(0.949)	448217	1000	1000	
24 Chloroform	83.00	5.233	5.233	(1.002)	734283	1000	1000	
27 1,1,1-Trichloroethane	97.00	6.018	6.018	(0.869)	543601	1000	1000	
28 1,2-Dichloroethane	62.00	6.107	6.107	(1.169)	615902	1000	1000	
30 Benzene	78.00	6.463	6.463	(0.933)	1744305	1000	1000	
31 Carbon Tetrachloride	117.00	6.490	6.490	(0.937)	446359	1000	1000	
34 1,2-Dichloropropane	63.00	7.453	7.453	(1.076)	475338	1000	1000	
35 Trichloroethene	130.00	7.479	7.479	(1.080)	396546	1000	1000	
37 Bromodichloromethane	83.00	7.676	7.676	(1.108)	545152	1000	1000	
39 2-Chloroethylvinylether	63.00	8.273	8.273	(1.194)	126639	1000	1100	
40 4-Methyl-2-Pentanone	43.00	8.496	8.496	(1.226)	816847	1000	970	
41 cis-1,3-Dichloropropene	75.00	8.540	8.540	(1.233)	679880	1000	1000	
42 trans-1,3-Dichloropropene	75.00	9.164	9.164	(1.323)	609260	1000	1000	
44 Toluene	92.00	9.253	9.253	(0.834)	963192	1000	1000	
45 1,1,2-Trichloroethane	83.00	9.333	9.333	(1.347)	324579	1000	990	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
2-Hexanone	43.00	9.699	9.699	(0.874)	781487	1000	1000
Dibromochloromethane	129.00	9.957	9.957	(1.438)	390277	1000	1000
49 Tetrachloroethene	164.00	10.305	10.305	(0.929)	364233	1000	1000
52 Chlorobenzene	112.00	11.143	11.143	(1.004)	970622	1000	1000
Xylene (Total)	106.00				1841062	3000	3000
Ethylbenzene	106.00	11.446	11.446	(1.031)	505573	1000	1000
55 m,p-Xylene(s)	106.00	11.615	11.615	(1.047)	1239149	2000	2000
56 Bromoform	173.00	12.034	12.034	(1.084)	310911	1000	1000
Styrene	104.00	12.079	12.079	(1.088)	1023574	1000	1100
o-Xylene	106.00	12.141	12.141	(1.094)	601913	1000	1000
60 1,1,2,2-Tetrachloroethane	83.00	12.480	12.480	(1.124)	467749	1000	970
Bromochloromethane	128.00	5.224	5.224	(1.000)	54619	250	
1,4-Difluorobenzene	114.00	6.927	6.927	(1.000)	303728	250	
50 Chlorobenzene-d5	117.00	11.098	11.098	(1.000)	241308	250	
26 1,2-Dichloroethane-d4	102.00	5.991	5.991	(1.147)	93621	1000	1000 (A)
Toluene-d8	98.00	9.146	9.146	(0.824)	1336610	1000	990
Bromofluorobenzene	95.00	12.774	12.774	(1.151)	514468	1000	1000 (A)

# Flag Legend

- Target compound detected but, quantitated amount exceeded maximum amount.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1122iw5.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950502.b/lvoclpw.m  
Misc Info: L122W1//L122IW3

Calibration Date: 05/02/95  
Calibration Time: 0914

Level: LOW  
Sample Type: WATER

COMPOUND =====	STANDARD =====	AREA LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
23 Bromochloromethane	57465	28732	114930	54619	-4.95
32 1,4-Difluorobenzene	309137	154568	618274	303728	-1.75
50 Chlorobenzene-d5	240326	120163	480652	241308	0.41

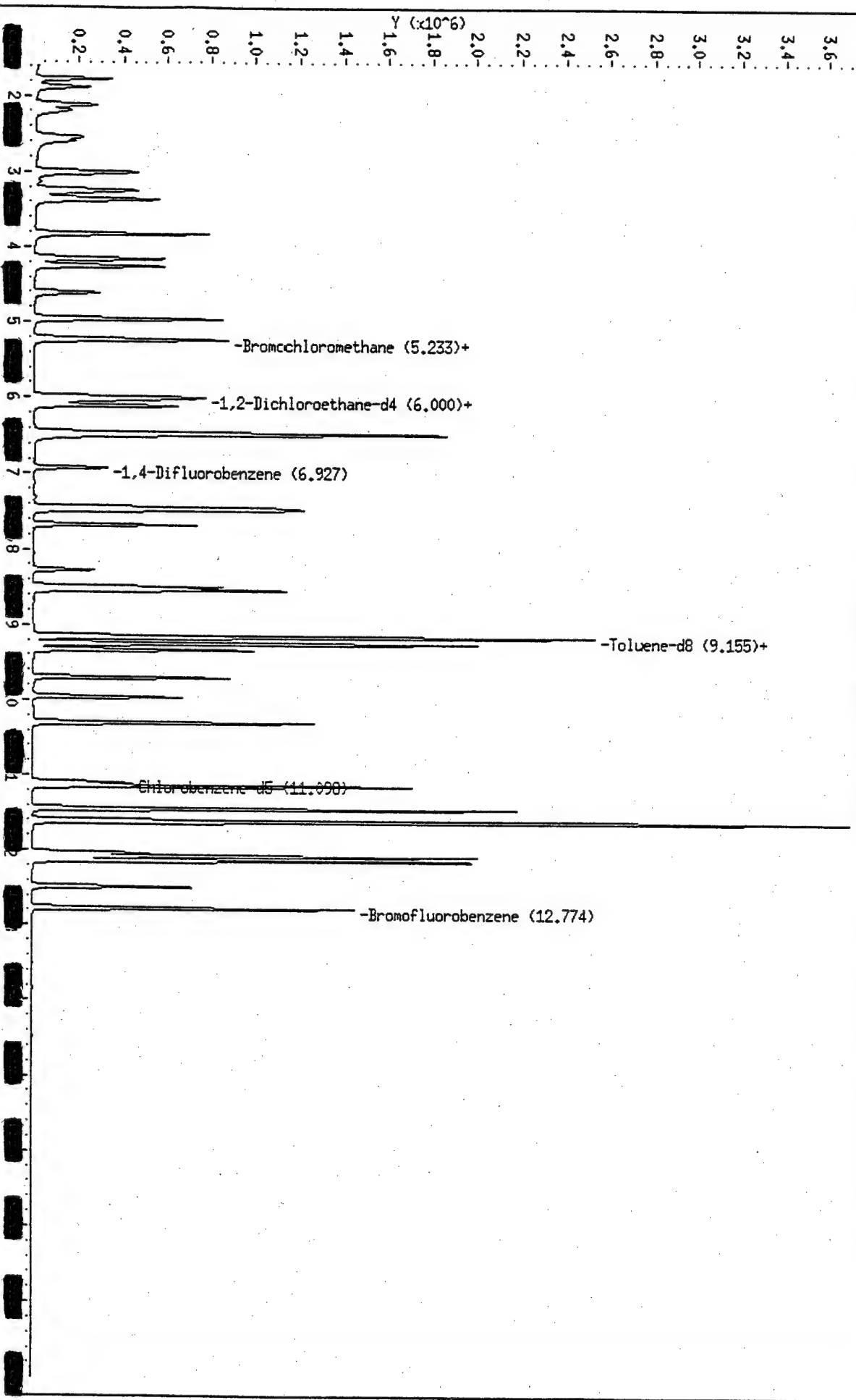
COMPOUND =====	STANDARD =====	RT LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
23 Bromochloromethane	5.22	4.72	5.72	5.22	0.13
32 1,4-Difluorobenzene	6.92	6.42	7.42	6.93	0.10
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.02

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950502.b/11221w5.d  
Date : 02-MAY-1995 10:09  
Client ID:  
Sample Info: 200 UG-L STD-8240M/1X  
Purge Volume: 5.0  
Column phase: 30m, In5ms, 0.25u df

Instrument: 1.1  
Operator: JC  
Column diameter: 0.25

/chem/1.1/1950502.b/11221w5.d



SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 1.i  
Lab File ID: 1125cw1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 06-MAY-1995 01:18  
Init. Calibration Date(s): 05/02/95 05/02/95  
Init. Calibration Times: 08:20 10:09  
Method File: /chem/1.i/1950505.b/lvoclpw.m

COMPOUND	RRF	RF250	MIN	MAX
			RRF	%D
1 Chloromethane	2.312	2.631	0.010	13.8
2 Vinyl Chloride	1.896	2.323	0.100	22.5
3 Bromomethane	1.492	1.558	0.100	4.4
4 Chloroethane	1.205	1.354	0.010	12.4
7 Trichlorofluoromethane	1.295	1.281	0.010	1.0
8 Acetone	0.383	0.360	0.010	6.1
11 1,1-Dichloroethene	1.424	1.423	0.100	0.1
13 Methylene Chloride	1.698	1.760	0.010	3.6
M 18 1,2-Dichloroethene (total)	1.868	1.829	0.010	2.1
14 Carbon Disulfide	5.712	5.797	0.010	1.5
15 trans-1,2-Dichloroethene	1.776	1.723	0.010	3.0
17 1,1-Dichloroethane	3.638	3.862	0.200	6.1
19 Vinyl Acetate	5.931	3.721	0.010	37.3
20 2-Butanone	2.770	2.517	0.010	9.1
21 cis-1,2-Dichloroethene	1.961	1.935	0.010	1.3
24 Chloroform	3.280	3.365	0.200	2.6
27 1,1,1-Trichloroethane	0.443	0.455	0.100	2.6
28 1,2-Dichloroethane	2.765	2.997	0.100	8.4
30 Benzene	1.436	1.516	0.500	5.5
31 Carbon Tetrachloride	0.360	0.373	0.100	3.5
34 1,2-Dichloropropane	0.389	0.424	0.010	8.8
35 Trichloroethene	0.325	0.357	0.300	10.1
37 Bromodichloromethane	0.443	0.458	0.200	3.3
39 2-Chloroethylvinylether	0.093	0.164	0.010	75.8
40 4-Methyl-2-Pentanone	0.692	0.707	0.010	2.1
41 cis-1,3-Dichloropropene	0.547	0.560	0.100	2.3
42 trans-1,3-Dichloropropene	0.486	0.485	0.100	0.4
44 Toluene	0.992	0.984	0.400	0.8
45 1,1,2-Trichloroethane	0.269	0.289	0.100	7.6
46 2-Hexanone	0.809	0.818	0.010	1.1
47 Dibromochloromethane	0.311	0.312	0.100	0.3
49 Tetrachloroethene	0.379	0.361	0.200	4.7
52 Chlorobenzene	0.999	1.000	0.500	0.1
M 53 Xylene (Total)	0.629	0.634	0.300	0.8
54 Ethylbenzene	0.515	0.507	0.100	1.6
55 m,p-Xylene(s)	0.634	0.634	0.300	0.1
56 Bromoform	0.312	0.291	0.100	6.6
57 Styrene	0.989	1.017	0.300	2.9
59 o-Xylene	0.618	0.635	0.300	2.8
60 1,1,2,2-Tetrachloroethane	0.501	0.488	0.300	2.6

SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 1.i  
Lab File ID: 1125cw1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 06-MAY-1995 01:18  
Init. Calibration Date(s): 05/02/95 05/02/95  
Init. Calibration Times: 08:20 10:09  
Method File: /chem/1.i/1950505.b/lvoclpw.m

COMPOUND	RF		MIN		MAX	
	RRF	RF250	RRF	%D	%D	
-----						
\$ 26 1,2-Dichloroethane-d4	0.421	0.401	0.010	4.8	40.0	
\$ 43 Toluene-d8	1.392	1.374	0.010	1.3	40.0	
\$ 61 Bromofluorobenzene	0.521	0.515	0.010	1.1	25.0	

SPL Labs

Volatiles by 624/8240  
Data file : /chem/1.i/1950505.b/l125cw1.d  
Lab Smp Id:   
Inj Date : 06-MAY-1995 01:18  
Operator : JC  
Smp Info : 50 UG-L STD-8240W/1X  
Misc Info : L125W1//L124CW1  
Comment :   
Method : /chem/1.i/1950505.b/lvoclpw.m  
Inj Date : 06-May-1995 08:32 jimmy  
Cal Date : 06-MAY-1995 01:18  
Vial bottle: 19  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: 1.i  
Quant Type: ISTD  
Cal File: l125cw1.d  
Continuing Calibration Sample  
Compound Sublist: normal.sub

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
1 Chloromethane	50.00	1.773	1.773	(0.340)	127135	250	280
2 Vinyl Chloride	62.00	1.889	1.889	(0.362)	112242	250	310
3 Bromomethane	94.00	2.121	2.121	(0.406)	75277	250	260
4 Chloroethane	64.00	2.192	2.192	(0.420)	65421	250	280
7 Trichlorofluoromethane	101.00	2.549	2.549	(0.488)	61910	250	250
8 Acetone	58.00	2.611	2.611	(0.500)	17394	250	230 (a)
11 1,1-Dichloroethene	96.00	3.012	3.012	(0.577)	68730	250	250
13 Methylene Chloride	84.00	3.244	3.244	(0.621)	85039	250	260
18 1,2-Dichloroethene (total)	96.00				176767	500	490
14 Carbon Disulfide	76.00	3.378	3.378	(0.647)	280088	250	250
15 trans-1,2-Dichloroethene	96.00	3.832	3.832	(0.734)	83265	250	240
17 1,1-Dichloroethane	63.00	4.162	4.162	(0.797)	186573	250	260
19 Vinyl Acetate	43.00	4.251	4.251	(0.814)	179778	250	160
20 2-Butanone	43.00	4.617	4.617	(0.884)	121621	250	230
21 cis-1,2-Dichloroethene	96.00	4.965	4.965	(0.951)	93502	250	250
24 Chloroform	83.00	5.241	5.241	(1.003)	162570	250	260
27 1,1,1-Trichloroethane	97.00	6.025	6.025	(0.870)	113009	250	260
28 1,2-Dichloroethane	62.00	6.105	6.105	(1.169)	144817	250	270
30 Benzene	78.00	6.471	6.471	(0.934)	376667	250	260
31 Carbon Tetrachloride	117.00	6.498	6.498	(0.938)	92728	250	260
34 1,2-Dichloropropane	63.00	7.451	7.451	(1.076)	105327	250	270
35 Trichloroethene	130.00	7.487	7.487	(1.081)	88816	250	280
37 Bromodichloromethane	83.00	7.674	7.674	(1.108)	113812	250	260
39 2-Chloroethylvinylether	63.00	8.280	8.280	(1.196)	40709	250	440
40 4-Methyl-2-Pentanone	43.00	8.503	8.503	(1.228)	175754	250	260
41 cis-1,3-Dichloropropene	75.00	8.539	8.539	(1.233)	139131	250	260
42 trans-1,3-Dichloropropene	75.00	9.163	9.163	(1.323)	120426	250	250
44 Toluene	92.00	9.252	9.252	(0.834)	200814	250	250
45 1,1,2-Trichloroethane	83.00	9.332	9.332	(1.348)	71797	250	270

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
6 2-Hexanone	43.00	9.707	9.707	(0.875)	166811	250	250
7 Dibromochloromethane	129.00	9.956	9.956	(1.438)	77505	250	250
49 Tetrachloroethene	164.00	10.304	10.304	(0.928)	73576	250	240
52 Chlorobenzene	112.00	11.142	11.142	(1.004)	204027	250	250
3 Xylene (Total)	106.00				388193	750	760
4 Ethylbenzene	106.00	11.445	11.445	(1.031)	103422	250	240
55 m,p-Xylene(s)	106.00	11.614	11.614	(1.047)	258640	500	500
56 Bromoform	173.00	12.033	12.033	(1.084)	59441	250	230
7 Styrene	104.00	12.078	12.078	(1.088)	207552	250	260
9 o-Xylene	106.00	12.140	12.140	(1.094)	129553	250	260
60 1,1,2,2-Tetrachloroethane	83.00	12.488	12.488	(1.125)	99610	250	240
3 Bromochloromethane	128.00	5.223	5.223	(1.000)	48316	250	
2 1,4-Difluorobenzene	114.00	6.926	6.926	(1.000)	248535	250	
50 Chlorobenzene-d5	117.00	11.097	11.097	(1.000)	204023	250	
26 1,2-Dichloroethane-d4	102.00	5.990	5.990	(1.147)	19374	250	240
3 Toluene-d8	98.00	9.154	9.154	(0.825)	280338	250	250
1 Bromofluorobenzene	95.00	12.773	12.773	(1.151)	105087	250	250

Flag Legend

- Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).



SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

nstrument ID: 1.i  
ab File ID: 1125cw1.d  
ab Smp Id:  
nalysis Type: VOA  
uant Type: ISTD  
perator: JC  
ethod File: /chem/1.i/1950505.b/lvoclpw.m  
isc Info: L125W1//L124CW1

Calibration Date: 05/06/95  
Calibration Time: 0118

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	48316	24158	96632	48316	0.00
32 1,4-Difluorobenzene	248535	124268	497070	248535	0.00
50 Chlorobenzene-d5	204023	102012	408046	204023	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
23 Bromochloromethane	5.22	4.72	5.72	5.22	0.00
32 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.00
50 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00

EA UPPER LIMIT = +100% of internal standard area.  
EA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950505.b/1125cwl.d  
Date : 06-MAY-1995 01:18

Client ID:

Sample Info: 50 UG-L STD-8240M/1X

Purge Volume: 5.0

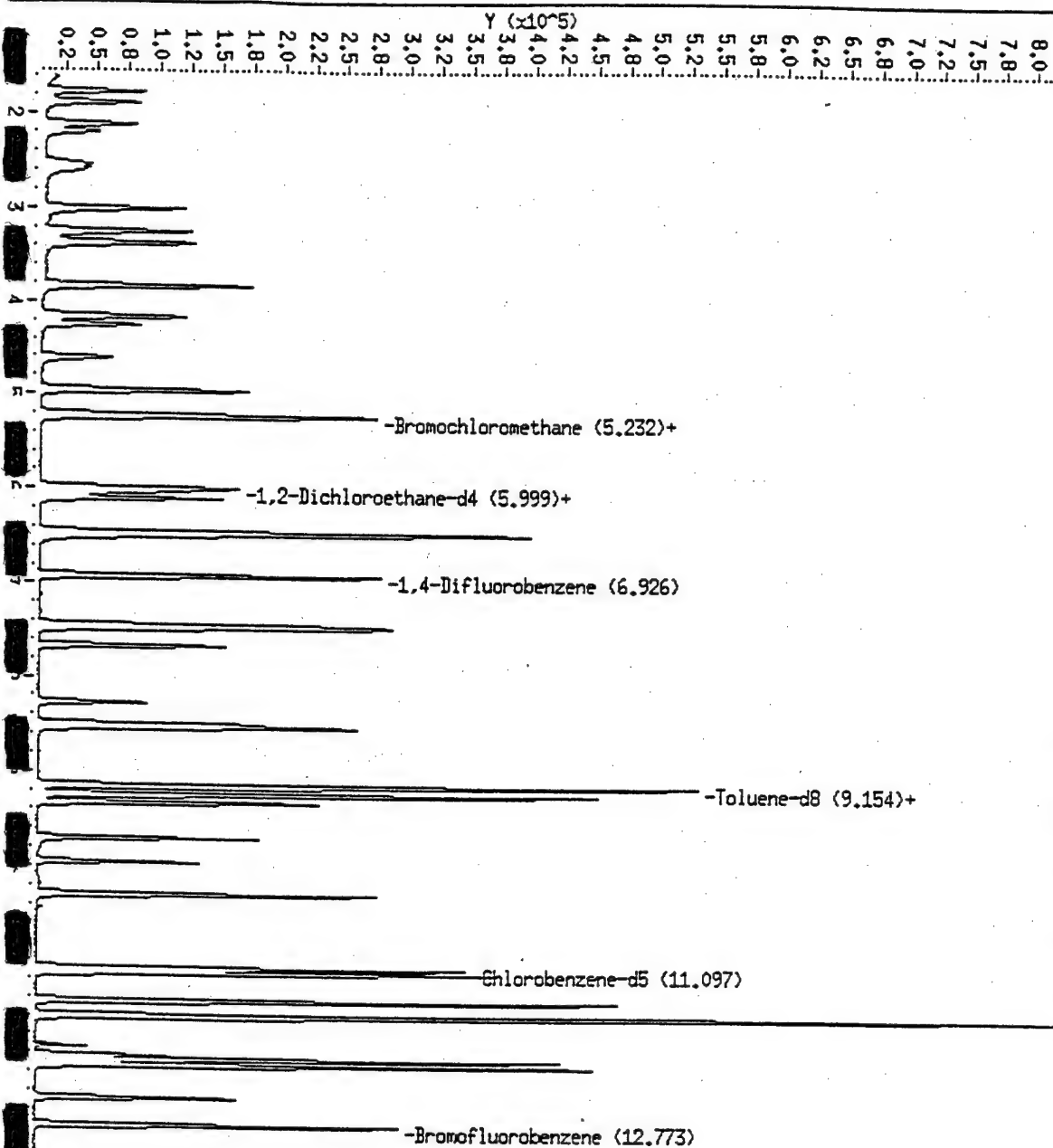
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950505.b/1125cwl.d



SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: k.i Injection Date: 08-MAY-1995 11:24  
Lab File ID: k128cs2.d Init. Calibration Date(s): 05/02/95 05/02/95  
Analysis Type: SOIL Init. Calibration Times: 20:30 21:27  
Lab Sample ID: 50 PPB STD 8240S Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Quant Type: ISTD

COMPOUND	RRF	RF250	MIN	MAX
-----	-----	-----	-----	-----
4 Chloromethane	2.451	2.680	0.010	9.3
5 Vinyl Chloride	2.538	2.670	0.100	5.2
7 Bromomethane	1.839	1.875	0.100	2.0
6 Chloroethane	2.054	2.349	0.010	14.4
9 Trichlorofluoromethane	1.955	1.484	0.010	24.1
8 Acetone	0.244	0.118	0.010	51.5
10 1,1-Dichloroethene	2.037	1.905	0.100	6.5
11 Methylene Chloride	2.413	2.293	0.010	5.0
M 1 1,2-Dichloroethene (total)	2.551	2.424	0.010	5.0
12 Carbon Disulfide	8.123	7.318	0.010	9.9
13 trans-1,2-Dichloroethene	2.583	2.353	0.010	8.9
14 1,1-Dichloroethane	4.811	4.618	0.200	4.0
16 Vinyl Acetate	4.341	3.595	0.010	17.2
17 2-Butanone	1.834	1.358	0.010	26.0
19 cis-1,2-Dichloroethene	2.519	2.495	0.010	1.0
21 Chloroform	4.063	3.752	0.200	7.7
24 1,1,1-Trichloroethane	3.305	2.785	0.100	15.7
25 1,2-Dichloroethane	0.456	0.447	0.100	2.0
27 Benzene	1.452	1.462	0.500	0.7
28 Carbon Tetrachloride	0.385	0.347	0.100	10.1
33 1,2-Dichloropropane	0.387	0.404	0.010	4.4
34 Trichloroethene	0.328	0.326	0.300	0.8
35 Bromodichloromethane	0.426	0.420	0.010	1.4
15 2-Chloroethylvinylether	0.732	0.740	0.010	1.1
38 4-Methyl-2-Pentanone	0.342	0.387	0.010	13.2
42 cis-1,3-Dichloropropene	0.390	0.370	0.200	5.4
37 trans-1,3-Dichloropropene	0.698	0.688	0.100	1.4
43 Toluene	1.189	1.129	0.400	5.0
44 1,1,2-Trichloroethane	0.316	0.307	0.100	2.9
45 2-Hexanone	0.388	0.484	0.010	24.7
46 Dibromochloromethane	0.372	0.350	0.100	5.7
48 Tetrachloroethene	0.403	0.341	0.200	15.3
52 Chlorobenzene	1.112	1.092	0.500	1.8
M 2 Xylene (Total)	0.716	0.680	0.300	5.1
53 Ethylbenzene	0.609	0.600	0.300	1.6
54 m,p-Xylene(s)	0.727	0.673	0.300	7.3
55 Bromoform	0.213	0.202	0.100	5.2
57 Styrene	1.129	1.063	0.300	5.8
58 o-Xylene	0.695	0.692	0.300	0.5
59 1,1,1,2,2-Tetrachloroethane	0.357	0.396	0.300	10.7

SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: k.i                      Injection Date: 08-MAY-1995 11:24  
Lab File ID: k128cs2.d                Init. Calibration Date(s): 05/02/95 05/02/95  
Analysis Type: SOIL                    Init. Calibration Times: 20:30 21:27  
Lab Sample ID: 50 PPB STD 8240S Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Quant Type: ISTD

COMPOUND	RRF	RF250	MIN	MAX
			RRF	%D
\$ 23 1,2-Dichloroethane-d4	0.482	0.460	0.010	4.6
\$ 40 Toluene-d8	1.661	1.512	0.010	9.0
\$ 61 Bromofluorobenzene	0.578	0.551	0.200	4.6

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950508.b/k128cs2.d  
Lab Smp Id: 50 PPB STD 8240S  
Inj Date : 08-MAY-1995 11:24  
Operator : HLW  
Smp Info : 50 PPB STD 8240S  
Misc Info :  
Comment :  
Method : /chem/k.i/k950508.b/kvocclps.m  
Meth Date : 08-May-1995 11:42 hillery  
Cal Date : 08-MAY-1995 11:24  
Als bottle: 5  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10  
Inst ID: k.i  
Quant Type: ISTD  
Cal File: k128cs2.d  
Integrator: HP RTE  
Compound Sublist: normal:subind:Subl

Compounds	QUANT SIG			RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT REL RT		ON-COLUMN ( ng)	FINAL (ug/Kg)
4 Chloromethane	50.00	1.363	1.363 (0.643)	237663	250	50
5 Vinyl Chloride	62.00	1.408	1.408 (0.664)	236791	250	50
7 Bromomethane	94.00	1.438	1.438 (0.678)	166279	250	50
6 Chloroethane	64.00	1.454	1.454 (0.686)	208269	250	50
9 Trichlorofluoromethane	100.90	1.529	1.529 (0.721)	131589	250	50
8 Acetone	58.00	1.529	1.529 (0.721)	10480	250	50
10 1,1-Dichloroethene	96.00	1.635	1.635 (0.771)	168931	250	50(a)
11 Methylene Chloride	84.00	1.681	1.681 (0.793)	203347	250	50
M 1 1,2-Dichloroethene (total)	96.00			429848	500	100
12 Carbon Disulfide	76.00	1.726	1.726 (0.814)	648946	250	50
13 trans-1,2-Dichloroethene	96.00	1.787	1.787 (0.843)	208625	250	50
14 1,1-Dichloroethane	63.00	1.863	1.863 (0.878)	409505	250	50
16 Vinyl Acetate	43.00	1.878	1.878 (0.886)	318771	250	50
17 2-Butanone	43.00	1.969	1.969 (0.929)	120383	250	50
19 cis-1,2-Dichloroethene	96.00	2.045	2.045 (0.964)	221223	250	50
21 Chloroform	83.00	2.120	2.120 (1.000)	332747	250	50
24 1,1,1-Trichloroethane	97.00	2.393	2.393 (1.129)	246977	250	50
25 1,2-Dichloroethane	62.00	2.423	2.423 (0.865)	247176	250	50
27 Benzene	78.00	2.560	2.560 (0.913)	808721	250	50
28 Carbon Tetrachloride	117.00	2.575	2.575 (0.919)	191670	250	50
33 1,2-Dichloropropane	63.00	3.090	3.090 (1.103)	223412	250	50
34 Trichloroethene	130.00	3.105	3.105 (1.108)	180129	250	50
35 Bromodichloromethane	83.00	3.226	3.226 (1.151)	232168	250	50
15 2-Chloroethylvinylether	63.00	1.863	1.863 (0.665)	409535	250	50
38 4-Methyl-2-Pentanone	43.00	4.045	4.045 (1.443)	214235	250	50
42 cis-1,3-Dichloropropene	75.00	4.666	4.666 (1.665)	204404	250	50
37 trans-1,3-Dichloropropene	75.00	3.969	3.969 (0.586)	273329	250	50
43 Toluene	92.00	4.651	4.651 (0.687)	448302	250	50
44 1,1,2-Trichloroethane	83.00	4.802	4.802 (0.709)	121942	250	50

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	(ug/Kg)
45 2-Hexanone		43.00	5.393	5.393	(0.796)	192367	250	50
46 Dibromochloromethane		129.00	5.408	5.408	(0.799)	139212	250	50
48 Tetrachloroethene		164.00	5.802	5.802	(0.857)	135558	250	50
52 Chlorobenzene		112.00	6.817	6.817	(1.007)	433563	250	50
M 2 Xylene (Total)		106.00				809708	750	150
53 Ethylbenzene		106.00	7.257	7.257	(1.072)	238247	250	50
54 m,p-Xylene(s)		106.00	7.469	7.469	(1.103)	534907	500	100
55 Bromoform		173.00	7.833	7.833	(1.157)	80174	250	50
57 Styrene		104.00	8.030	8.030	(1.186)	422417	250	50
58 o-Xylene		106.00	8.075	8.075	(1.192)	274801	250	50
59 1,1,2,2-Tetrachloroethane		83.00	8.621	8.621	(1.273)	157204	250	50
20 Bromochloromethane		128.00	2.120	2.120	(1.000)	88679	250	
31 1,4-Difluorobenzene		114.00	2.802	2.802	(1.000)	553116	250	
51 Chlorobenzene-d5		117.00	6.772	6.772	(1.000)	397197	250	
S 23 1,2-Dichloroethane-d4		102.00	2.378	2.378	(1.121)	40798	250	
S 40 Toluene-d8		98.00	4.545	4.545	(0.671)	600664	250	
S 61 Bromofluorobenzene		95.00	8.878	8.878	(1.311)	218818	250	50

# QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: k.i  
Lab File ID: k128cs2.d  
Lab Smp Id: 50 PPB STD 8240S  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: HLW

Calibration Date: 05/08/95  
Calibration Time: 1124

Level: LOW  
Sample Type: SOIL

Method File: /chem/k.i/k950508.b/kvoclp.s.m  
Misc Info:

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	88679	44340	177358	88679	0.00
31 1,4-Difluorobenzene	553116	276558	1106232	553116	0.00
51 Chlorobenzene-d5	397197	198598	794394	397197	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.00
31 1,4-Difluorobenzene	2.80	2.30	3.30	2.80	0.00
51 Chlorobenzene-d5	6.77	6.27	7.27	6.77	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950508.b/k128cs2.d  
Date : 08-MAY-1995 11:24

Client ID:

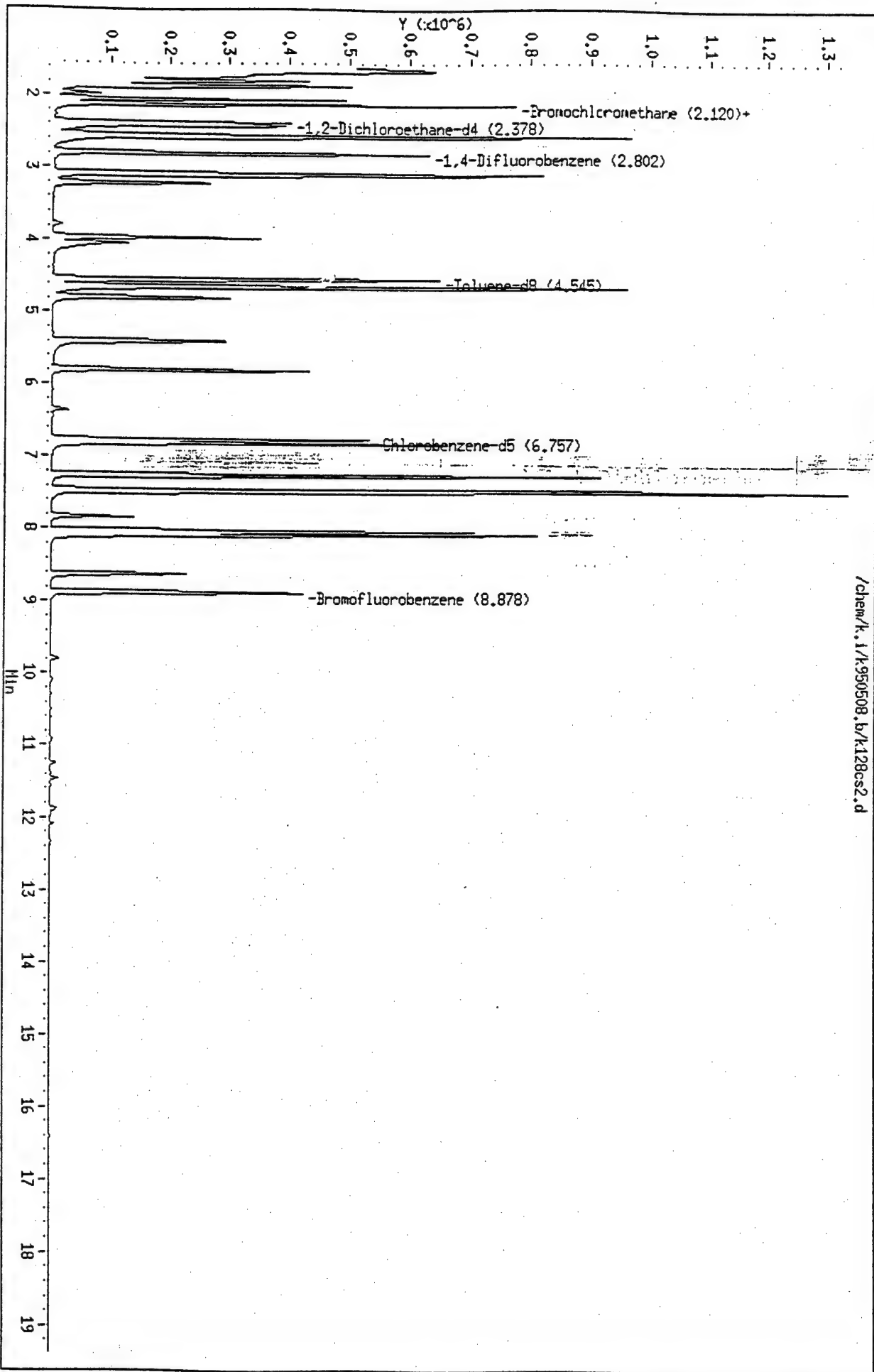
Sample Info: 50 PPB STD 82405

Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1

Operator: HLM

Column diameter: 0.25





SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: k.i Injection Date: 09-MAY-1995 11:08  
Lab File ID: k129cs2.d Init. Calibration Date(s): 05/02/95 05/02/95  
Analysis Type: SOIL Init. Calibration Times: 20:30 21:27  
Lab Sample ID: 50 PPB STD 8240S Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Quant Type: ISTD

COMPOUND	RRF	RF250	MIN	MAX
			RRF	%D
4 Chloromethane	2.451	2.879	0.010	17.5
5 Vinyl Chloride	2.538	2.838	0.100	11.8
7 Bromomethane	1.839	1.907	0.100	3.7
6 Chloroethane	2.054	2.393	0.010	16.5
9 Trichlorofluoromethane	1.955	1.458	0.010	25.4
8 Acetone	0.244	0.144	0.010	40.7
10 1,1-Dichloroethene	2.037	1.899	0.100	6.8
11 Methylene Chloride	2.413	2.147	0.010	11.1
M 1 1,2-Dichloroethene (total)	2.551	2.360	0.010	7.5
12 Carbon Disulfide	8.123	7.391	0.010	9.0
13 trans-1,2-Dichloroethene	2.583	2.208	0.010	14.5
14 1,1-Dichloroethane	4.811	4.800	0.200	0.2
16 Vinyl Acetate	4.341	3.238	0.010	25.4
17 2-Butanone	1.834	1.074	0.010	41.4
19 cis-1,2-Dichloroethene	2.519	2.511	0.010	0.3
21 Chloroform	4.063	3.894	0.200	4.2
24 1,1,1-Trichloroethane	3.305	2.914	0.100	11.8
25 1,2-Dichloroethane	0.456	0.423	0.100	7.4
27 Benzene	1.452	1.459	0.500	0.4
28 Carbon Tetrachloride	0.385	0.350	0.100	9.3
33 1,2-Dichloropropane	0.387	0.407	0.010	5.1
34 Trichloroethene	0.328	0.334	0.300	1.9
35 Bromodichloromethane	0.426	0.433	0.010	1.8
15 2-Chloroethylvinylether	0.732	0.752	0.010	2.7
38 4-Methyl-2-Pentanone	0.342	0.245	0.010	28.2
42 cis-1,3-Dichloropropene	0.390	0.370	0.200	5.3
37 trans-1,3-Dichloropropene	0.698	0.683	0.100	2.2
43 Toluene	1.189	1.177	0.400	1.0
44 1,1,2-Trichloroethane	0.316	0.302	0.100	4.6
45 2-Hexanone	0.388	0.302	0.010	22.1
46 Dibromochloromethane	0.372	0.356	0.100	4.2
48 Tetrachloroethene	0.403	0.366	0.200	9.1
52 Chlorobenzene	1.112	1.122	0.500	0.9
M 2 Xylene (Total)	0.716	0.734	0.300	2.5
53 Ethylbenzene	0.609	0.596	0.300	2.3
54 m,p-Xylene(s)	0.727	0.723	0.300	0.5
55 Bromoform	0.213	0.203	0.100	4.9
57 Styrene	1.129	1.195	0.300	5.9
58 o-Xylene	0.695	0.755	0.300	8.6
59 1,1,2,2-Tetrachloroethane	0.357	0.394	0.300	10.3

SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: k.i                      Injection Date: 09-MAY-1995 11:08  
Lab File ID: k129cs2.d                Init. Calibration Date(s): 05/02/95 05/02/95  
Analysis Type: SOIL                    Init. Calibration Times: 20:30 21:27  
Lab Sample ID: 50 PPB STD 8240S Method File: /chem/k.i/k950509.b/kvoclp.s.m  
Quant Type: ISTD

COMPOUND	RRF	RF250	MIN RRF	MAX %D
-----	-----	-----	-----	-----
\$ 23 1,2-Dichloroethane-d4	0.482	0.441	0.010	8.6 40.0
\$ 40 Toluene-d8	1.661	1.539	0.010	7.3 40.0
\$ 61 Bromofluorobenzene	0.578	0.546	0.200	5.5 25.0

SPL Labs

Volatiles by 8240

Data file : /chem/k.i/k950509.b/k129cs2.d

Lab Smp Id: 50 PPB STD 8240S

Inj Date : 09-MAY-1995 11:08

Operator : HLW

Inst ID: k.i

Smp Info : 50 PPB STD 8240S

Misc Info :

Comment :

Method : /chem/k.i/k950509.b/kvoclp.s.m

Meth Date : 09-May-1995 11:38 hillery Quant Type: ISTD

Cal Date : 09-MAY-1995 11:08 Cal File: k129cs2.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

0905: 4500

0905: 4500

Compound Sublist: normal.sub

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	(ug/Kg)
-----	----	----	--	-----	-----	-----	-----	-----
4 Chloromethane		50.00	1.365	1.365	(0.643)	248975	250	50
5 Vinyl Chloride		62.00	1.395	1.395	(0.657)	245411	250	50
7 Bromomethane		94.00	1.441	1.441	(0.679)	164865	250	50
6 Chloroethane		64.00	1.441	1.441	(0.679)	206967	250	50
9 Trichlorofluoromethane		100.90	1.517	1.517	(0.714)	126075	250	50
8 Acetone		58.00	1.517	1.517	(0.714)	12488	250	50 (a)
10 1,1-Dichloroethene		96.00	1.623	1.623	(0.764)	164166	250	50
11 Methylene Chloride		84.00	1.668	1.668	(0.786)	185629	250	50
M 1 1,2-Dichloroethene (total)		96.00				408080	500	100
12 Carbon Disulfide		76.00	1.714	1.714	(0.807)	639149	250	50
13 trans-1,2-Dichloroethene		96.00	1.774	1.774	(0.836)	190950	250	50
14 1,1-Dichloroethane		63.00	1.850	1.850	(0.872)	415024	250	50
16 Vinyl Acetate		43.00	1.865	1.865	(0.879)	279989	250	50
17 2-Butanone		43.00	1.956	1.956	(0.921)	92900	250	50
19 cis-1,2-Dichloroethene		96.00	2.047	2.047	(0.964)	217130	250	50
21 Chloroform		83.00	2.123	2.123	(1.000)	336741	250	50
24 1,1,1-Trichloroethane		97.00	2.395	2.395	(1.128)	251956	250	50
25 1,2-Dichloroethane		62.00	2.411	2.411	(0.864)	233295	250	50
27 Benzene		78.00	2.547	2.547	(0.913)	805173	250	50
28 Carbon Tetrachloride		117.00	2.577	2.577	(0.924)	193109	250	50
33 1,2-Dichloropropane		63.00	3.077	3.077	(1.103)	224444	250	50
34 Trichloroethene		130.00	3.092	3.092	(1.109)	184595	250	50
35 Bromodichloromethane		83.00	3.214	3.214	(1.152)	239054	250	50
15 2-Chloroethylvinylether		63.00	1.850	1.850	(0.663)	415024	250	50
38 4-Methyl-2-Pentanone		43.00	4.032	4.032	(1.445)	135521	250	50
42 cis-1,3-Dichloropropene		75.00	4.653	4.653	(1.668)	204094	250	50
37 trans-1,3-Dichloropropene		75.00	3.956	3.956	(0.585)	265523	250	50
43 Toluene		92.00	4.638	4.638	(0.686)	457812	250	50
44 1,1,2-Trichloroethane		83.00	4.789	4.789	(0.709)	117329	250	50

Compounds	QUANT SIG		RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
	MASS						ON-COLUMN ( ng)	FINAL (ug/Kg)
45 2-Hexanone	43.00		5.396	5.396	(0.798)	117606	250	50
46 Dibromochloromethane	129.00		5.396	5.396	(0.798)	138579	250	50
48 Tetrachloroethene	164.00		5.805	5.805	(0.859)	142462	250	50
52 Chlorobenzene	112.00		6.805	6.805	(1.007)	436573	250	50
M 2 Xylene (Total)	106.00					856274	750	150
53 Ethylbenzene	106.00		7.244	7.244	(1.072)	231669	250	50
54 m,p-Xylene(s)	106.00		7.471	7.471	(1.105)	562419	500	100
55 Bromoform	173.00		7.835	7.835	(1.159)	78792	250	50
57 Styrene	104.00		8.017	8.017	(1.186)	465072	250	50
58 o-Xylene	106.00		8.077	8.077	(1.195)	293855	250	50
59 1,1,2,2-Tetrachloroethane	83.00		8.623	8.623	(1.276)	153370	250	50
* 20 Bromochloromethane	128.00		2.123	2.123	(1.000)	86471	250	
* 31 1,4-Difluorobenzene	114.00		2.789	2.789	(1.000)	552052	250	
* 51 Chlorobenzene-d5	117.00		6.759	6.759	(1.000)	389031	250	
\$ 23 1,2-Dichloroethane-d4	102.00		2.365	2.365	(1.114)	38140	250	50
\$ 40 Toluene-d8	98.00		4.532	4.532	(0.670)	598801	250	50
\$ 61 Bromofluorobenzene	95.00		8.865	8.865	(1.312)	212343	250	50

QC Flag Legend

QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: k.i  
 Lab File ID: k129cs2.d  
 Lab Smp Id: 50 PPB STD 8240S  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: HLW  
 Method File: /chem/k.i/k950509.b/kvoc1ps.m  
 Misc Info:

Calibration Date: 05/09/95  
 Calibration Time: 1108

Level: LOW  
 Sample Type: SOIL

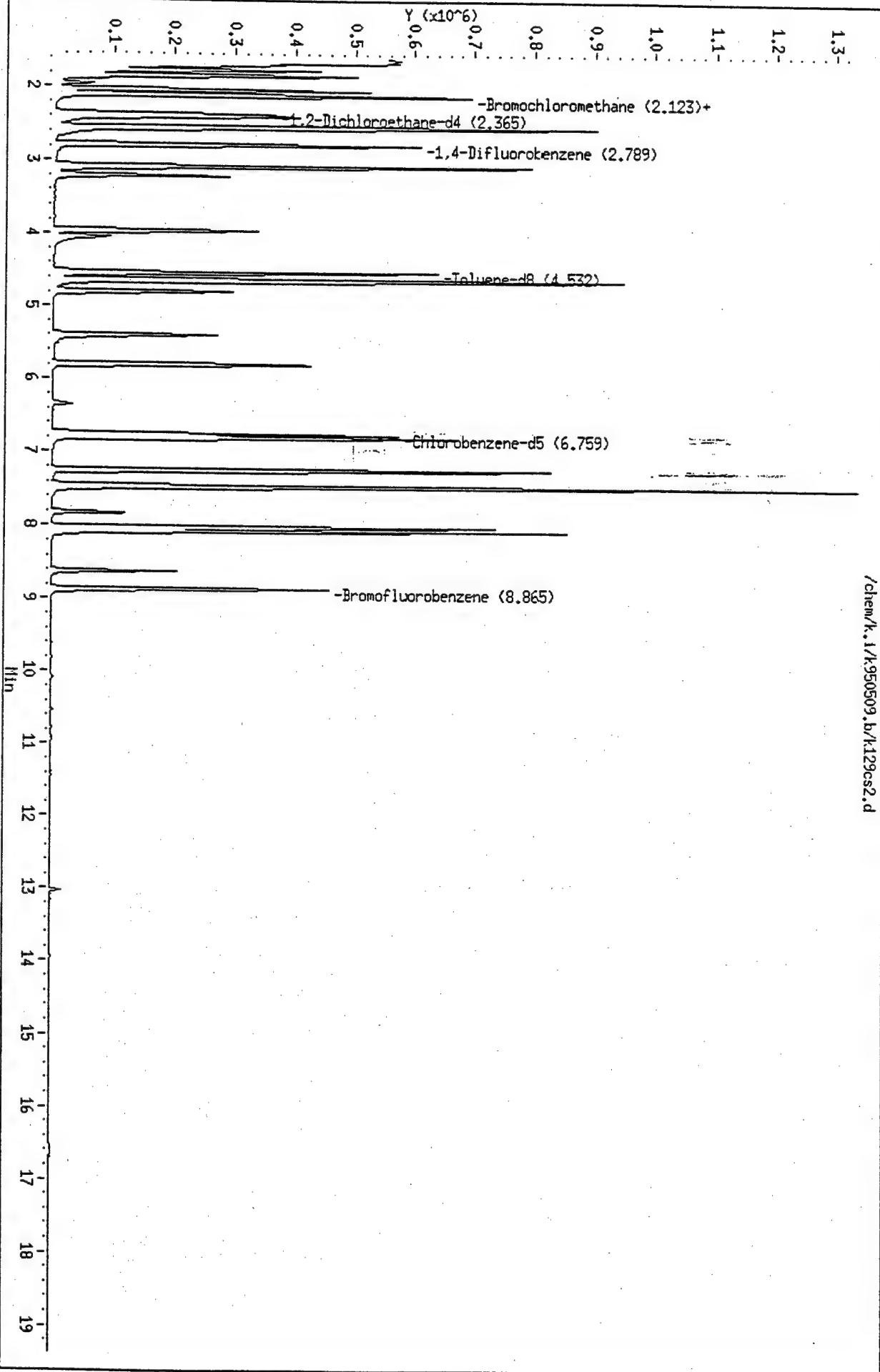
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	86471	43236	172942	86471	0.00
31 1,4-Difluorobenzene	552052	276026	1104104	552052	0.00
51 Chlorobenzene-d5	389031	194516	778062	389031	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
20 Bromochloromethane	2.12	1.62	2.62	2.12	0.00
31 1,4-Difluorobenzene	2.79	2.29	3.29	2.79	0.00
51 Chlorobenzene-d5	6.76	6.26	7.26	6.76	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/k.1/k950509.b/k129cs2.d  
Date : 09-10-1995 11:08  
Client ID:  
Sample Info: 50 PPB STD 82405  
Column phase: 30m, hp5ms, 0.25u df

Instrument: k.1  
Operator: HLM  
Column diameter: 0.25



3A  
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPL

Case No.: BLANK

SAS No.: \_\_\_\_\_

SDG NO.: 505164

Matrix Spike - EPA Sample No.: BLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC.
Phenol	75	0	45	60	12-110
2-Chlorophenol	75	0	49	65	27-123
1,4-Dichlorobenzene	50	0	18	36	36- 97
N-Nitroso-di-n-propylamin	50	0	34	68	41-116
1,2,4-Trichlorobenzene	50	0	21	42	39- 98
4-Chloro-3-methylphenol	75	0	61	81	23- 97
Acenaphthene	50	0	32	64	46-118
4-Nitrophenol	75	0	48	64	10- 80
2,4-Dinitrotoluene	50	0	42	84	24- 96
Pentachlorophenol	75	0	44	59	9-103
Pyrene	50	0	32	64	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
Phenol	75	45	60	0	42	12-110
2-Chlorophenol	75	50	67	3	40	27-123
1,4-Dichlorobenzene	50	19	38	5	28	36- 97
N-Nitroso-di-n-propylamin	50	32	64	6	38	41-116
1,2,4-Trichlorobenzene	50	21	42	0	28	39- 98
4-Chloro-3-methylphenol	75	62	83	2	42	23- 97
Acenaphthene	50	33	66	3	31	46-118
4-Nitrophenol	75	51	68	6	50	10- 80
2,4-Dinitrotoluene	50	43	86	2	38	24- 96
Pentachlorophenol	75	46	61	3	50	9-103
Pyrene	50	30	60	6	31	26-127

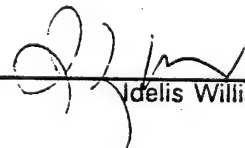
# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

FORM III SV - 1

  
\_\_\_\_\_  
Idelis Williams, QC Officer

Data File: /chem/h.i/h950515.b/h132kb2.d  
Report Date: 16-May-1995 09:06

Page 1

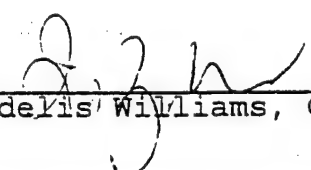
SPL Houston Labs

## RECOVERY REPORT

Client Name: Client SDG: h950515  
Sample Matrix: SOLID Fraction: SV  
Lab Smp Id: LCS Operator: LH  
Level: LOW SampleType: BLANK  
Data Type: MS DATA Quant Type: ISTD  
SpikeList File: 8270s.spk  
Method File: /chem/h.i/h950515.b/hclps.m  
Misc Info: E132S1/H132B02/H135CC1

SPIKE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
5 Phenol	2500	1000	40.44	26-90
9 2-Chlorophenol	2500	1200	46.75	25-102
12 1,4-Dichlorobenzen	1600	860	53.45	28-104
21 N-Nitroso-di-n-pro	1600	1100	70.37	41-126
31 1,2,4-Trichloroben	1600	930	57.96	38-107
36 4-Chloro-3-methylp	2500	1700	67.67	26-103
49 Acenaphthene	1600	930	58.26	31-137
51 4-Nitrophenol	2500	2200	90.05	11-114
53 2,4-Dinitrotoluene	1600	1200	73.91	28-89
64 Pentachlorophenol	2500	1800	73.89	17-109
71 Pyrene	1600	920	57.85	35-142

SURROGATE COMPOUND	CONC ADDED ug/Kg	CONC RECOVERED ug/Kg	% RECOVERED	LIMITS
\$ 23 Nitrobenzene-d5	1600	990	61.83	23-120
\$ 41 2-Fluorobiphenyl	1600	1000	62.39	30-115
\$ 72 Terphenyl-d14	1600	1100	68.49	18-137
\$ 3 2-Fluorophenol	2500	1100	44.79	25-121
\$ 4 Phenol-d5	2500	1200	46.32	24-113
\$ 61 2,4,6-Tribromophen	2500	2000	80.51	19-122

  
Idellis Williams, QC Officer



3B  
SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPL

Case No.: 505164

SAS No.: \_\_\_\_\_

SDG NO.: 505164

Matrix Spike - EPA Sample No.: 026-001BH 9-9.5

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC#	QC LIMIT REC.
Phenol	2500	0	1200	48	26- 90
2-Chlorophenol	2500	0	1500	60	25-102
1,4-Dichlorobenzene	1600	0	1100	69	28-104
N-Nitroso-di-n-prop.(1)	1600	0	1500	94	41-126
1,2,4-Trichlorobenzene	1600	0	1200	75	38-107
4-Chloro-3-methylphenol	2500	0	2100	84	26-103
Acenaphthene	1600	0	1200	75	31-137
4-Nitrophenol	2500	0	3300	132*	11-114
2,4-Dinitrotoluene	1600	0	1600	100*	28- 89
Pentachlorophenol	2500	0	2400	96	17-109
Pyrene	1600	0	1100	69	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
Phenol	2500	1200	48	0	35	26- 90
2-Chlorophenol	2500	1600	64	6	50	25-102
1,4-Dichlorobenzene	1600	1200	75	8	27	28-104
N-Nitroso-di-n-prop.(1)	1600	1700	106	12	38	41-126
1,2,4-Trichlorobenzene	1600	1400	88	16	23	38-107
4-Chloro-3-methylphenol	2500	2200	88	5	33	26-103
Acenaphthene	1600	1200	75	0	19	31-137
4-Nitrophenol	2500	3700	148*	11	50	11-114
2,4-Dinitrotoluene	1600	1600	100*	0	47	28- 89
Pentachlorophenol	2500	2400	96	0	47	17-109
Pyrene	1600	1000	63	9	36	35-142

(1) N-Nitroso-di-n-propylamine

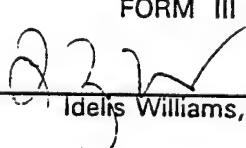
# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 11 outside limits

Spike Recovery: 4 out of 22 outside limits

FORM III SV - 2

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 3

Matrix: Soil  
Sample ID: BLANK  
Batch: E950512044703

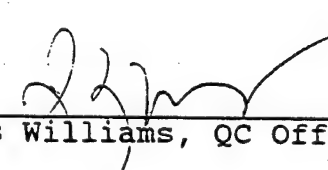
Reported on: 05/18/95 13:27  
Analyzed on: 05/15/95 18:42  
Analyst: LH

## METHOD 8270 BLANK H132B02

C o m p o u n d	Result	Detection Limit	Units
Pyridine	ND	330	ug/Kg
Phenol	ND	330	ug/Kg
Aniline	ND	330	ug/Kg
bis(2-Chloroethyl) ether	ND	330	ug/Kg
2-Chlorophenol	ND	330	ug/Kg
1,3-Dichlorobenzene	ND	330	ug/Kg
1,4-Dichlorobenzene	ND	330	ug/Kg
Benzyl alcohol	ND	330	ug/Kg
1,2-Dichlorobenzene	ND	330	ug/Kg
2-Methylphenol	ND	330	ug/Kg
bis(2-chloroisopropyl) ethe	ND	330	ug/Kg
4-Methylphenol	ND	330	ug/Kg
N-Nitroso-di-n-propylamine	ND	330	ug/Kg
Hexachloroethane	ND	330	ug/Kg
Nitrobenzene	ND	330	ug/Kg
Isophorone	ND	330	ug/Kg
2-Nitrophenol	ND	330	ug/Kg
2,4-Dimethylphenol	ND	330	ug/Kg
Benzoic acid	ND	1600	ug/Kg
bis(2-Chloroethoxy) methane	ND	330	ug/Kg
2,4-Dichlorophenol	ND	330	ug/Kg
1,2,4-Trichlorobenzene	ND	330	ug/Kg
Naphthalene	ND	330	ug/Kg
4-Chloroaniline	ND	330	ug/Kg
Hexachlorobutadiene	ND	330	ug/Kg
4-Chloro-3-methylphenol	ND	330	ug/Kg
2-Methylnaphthalene	ND	330	ug/Kg
Hexachlorocyclopentadiene	ND	330	ug/Kg
2,4,6-Trichlorophenol	ND	330	ug/Kg
2,4,5-Trichlorophenol	ND	800	ug/Kg
2-Chloronaphthalene	ND	330	ug/Kg
2-Nitroaniline	ND	800	ug/Kg
Dimethylphthalate	ND	330	ug/Kg
2,6-Dinitrotoluene	ND	330	ug/Kg

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 4

Matrix: Soil  
Sample ID: BLANK  
Batch: E950512044703

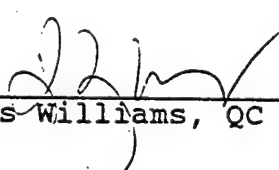
Reported on: 05/18/95 13:27  
Analyzed on: 05/15/95 18:42  
Analyst: LH

METHOD 8270 BLANK H132B02

C o m p o u n d	Result	Detection Limit	Units
Acenaphthylene	ND	330	ug/Kg
3-Nitroaniline	ND	800	ug/Kg
Acenaphthene	ND	330	ug/Kg
2,4-Dinitrophenol	ND	800	ug/Kg
4-Nitrophenol	ND	800	ug/Kg
Dibenzofuran	ND	330	ug/Kg
2,4-Dinitrotoluene	ND	330	ug/Kg
Diethylphthalate	ND	330	ug/Kg
4-Chlorophenyl-phenylether	ND	330	ug/Kg
Fluorene	ND	330	ug/Kg
4-Nitroaniline	ND	800	ug/Kg
4,6-Dinitro-2-methylphenol	ND	800	ug/Kg
n-Nitrosodiphenylamine	ND	330	ug/Kg
1,2-Diphenylhydrazine	ND	330	ug/Kg
4-Bromophenyl-phenylether	ND	330	ug/Kg
Hexachlorobenzene	ND	330	ug/Kg
Pentachlorophenol	ND	800	ug/Kg
Phenanthrene	ND	330	ug/Kg
Anthracene	ND	330	ug/Kg
Carbazole	ND	330	ug/Kg
Di-n-butylphthalate	ND	330	ug/Kg
Fluoranthene	ND	330	ug/Kg
Pyrene	ND	330	ug/Kg
Butylbenzylphthalate	ND	330	ug/Kg
3,3'-Dichlorobenzidine	ND	330	ug/Kg
Benzo[a]anthracene	ND	330	ug/Kg
Chrysene	ND	330	ug/Kg
bis(2-Ethylhexyl)phthalate	ND	330	ug/Kg
Di-n-octylphthalate	ND	330	ug/Kg
Benzo[b]fluoranthene	ND	330	ug/Kg
Benzo[k]fluoranthene	ND	330	ug/Kg
Benzo[a]pyrene	ND	330	ug/Kg
Indeno[1,2,3-cd]pyrene	ND	330	ug/Kg
Dibenz[a,h]anthracene	ND	330	ug/Kg

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 5

Matrix: Soil  
Sample ID: BLANK  
Batch: E950512044703

Reported on: 05/18/95 13:27  
Analyzed on: 05/15/95 18:42  
Analyst: LH

## METHOD 8270 BLANK H132B02

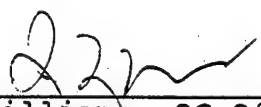
C o m p o u n d	Result	Detection Limit	Units
Benzo[g,h,i]perylene	ND	330	ug/Kg

S u r r o g a t e	Result	QC Criteria	Units
2-Fluorophenol	45	25-121	% Recovery
Phenol-d5	54	24-113	% Recovery
Nitrobenzene-d5	70	23-120	% Recovery
2-Fluorobiphenyl	71	30-115	% Recovery
2,4,6-Tribromophenol	88	19-122	% Recovery
Terphenyl-d14	86	18-137	% Recovery

Samples in Batch 9505164-01 9505164-02 9505164-03 9505164-04  
9505164-05 9505164-06 9505164-07 9505164-08  
9505164-09 9505164-10 9505164-12 9505164-13

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

SPL Houston Labs

Data file : /chem/h.i/h950515.b/h132b02.d

Lab Smp Id:

Inj Date : 15-MAY-1995 18:42

Operator : LH

Inst ID: h.i

Smp Info : BLANK-8270S/1X

Misc Info : E132S1/H132B02/H135CC1

Comment :

Method : /chem/h.i/h950515.b/hclps.m

Meth Date : 16-May-1995 11:41 liping

Quant Type: ISTD

Cal Date : 15-MAY-1995 15:26

Cal File: h135cc1.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: blk.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	(ug/Kg)
=====	=====	==	=====	=====	=====	=====	=====	
\$ 3 2-Fluorophenol	112.00	3.489	3.458	(0.780)	458931	68	1100	
\$ 4 Phenol-d5	99.00	4.188	4.193	(0.936)	598458	80	1300	
* 11 1,4-Dichlorobenzene-d4	152.00	4.472	4.477	(1.000)	193111	40		
\$ 23 Nitrobenzene-d5	82.00	4.982	4.999	(0.879)	382000	68	1100	
* 32 Naphthalene-d8	136.00	5.669	5.674	(1.000)	711630	40		
\$ 41 2-Fluorobiphenyl	172.00	6.759	6.765	(0.908)	768337	68	1100	
* 48 Acenaphthene-d10	164.00	7.447	7.452	(1.000)	344724	40		
\$ 61 2,4,6-Tribromophenol	329.70	8.264	8.258	(0.924)	215471	130	2200	
* 65 Phenanthrene-d10	188.00	8.940	8.945	(1.000)	477181	40		
\$ 72 Terphenyl-d14	244.00	10.575	10.580	(0.896)	688994	82	1400	
* 76 Chrysene-d12	240.00	11.808	11.813	(1.000)	311102	40		
* 83 Perylene-d12	264.00	14.047	14.053	(1.000)	194677	40		

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h132b02.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950515.b/hclps.m  
 Misc Info: E132S1/H132B02/H135CC1

Calibration Date: 05/15/95  
 Calibration Time: 1526

Level: LOW  
 Sample Type: SOIL

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	123023	61512	246046	193111	56.97
32 Naphthalene-d8	418440	209220	836880	711630	70.07
48 Acenaphthene-d10	198324	99162	396648	344724	73.82
65 Phenanthrene-d10	270386	135193	540772	477181	76.48
76 Chrysene-d12	175926	87963	351852	311102	76.84
83 Perylene-d12	106536	53268	213072	194677	82.73

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.48	3.98	4.98	4.47	-0.12
32 Naphthalene-d8	5.67	5.17	6.17	5.67	-0.09
48 Acenaphthene-d10	7.45	6.95	7.95	7.45	-0.07
65 Phenanthrene-d10	8.95	8.45	9.45	8.94	-0.06
76 Chrysene-d12	11.81	11.31	12.31	11.81	-0.04
83 Perylene-d12	14.05	13.55	14.55	14.05	-0.04

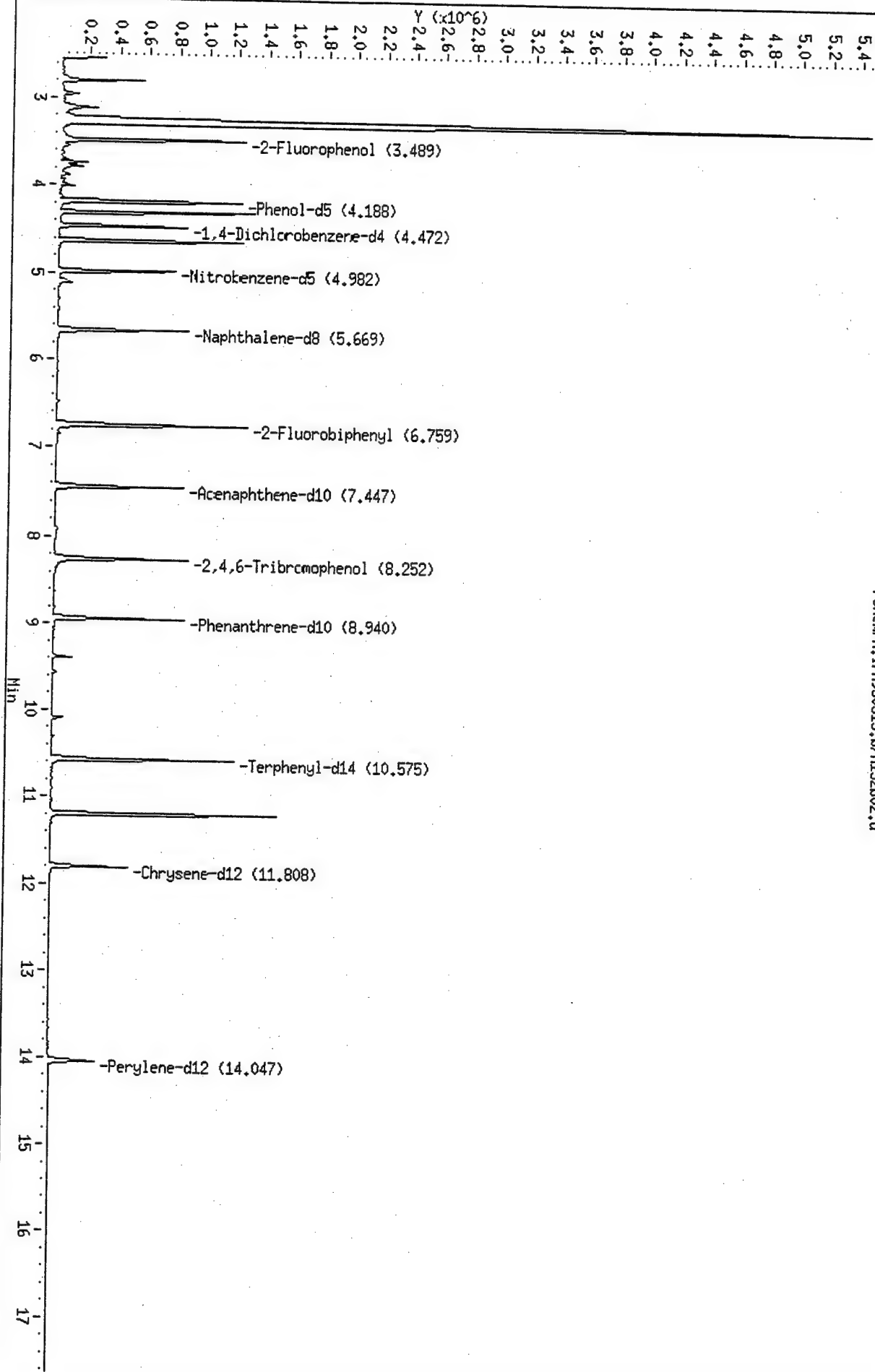
AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950515.b/h132b02.d  
Date : 15-MAY-1995 18:42

Client ID:  
Sample Info: BLANK-8270S/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950515.b/h132b02.d



## SPL Blank QC Report

page 1

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950509041714

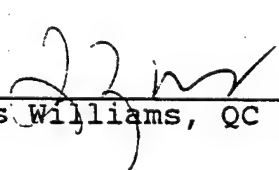
Reported on: 05/18/95 14:33  
Analyzed on: 05/16/95 14:22  
Analyst: PC

## METHOD 8270

Compound	Result	Detection Limit	Units
Pyridine	ND	5	ug/L
Phenol	ND	5	ug/L
Aniline	ND	5	ug/L
bis(2-Chloroethyl) ether	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
bis(2-chloroisopropyl) ether	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
N-Nitroso-di-n-propylamine	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Nitrobenzene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Benzoic acid	ND	25	ug/L
bis(2-Chloroethoxy) methane	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
Naphthalene	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
4-Chloro-3-methylphenol	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
Dimethylphthalate	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer



## SPL Blank QC Report

page 2

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950509041714

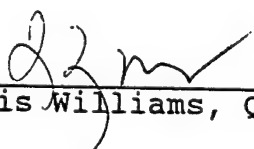
Reported on: 05/18/95 14:33  
Analyzed on: 05/16/95 14:22  
Analyst: PC

## METHOD 8270

Compound	Result	Detection Limit	Units
Acenaphthylene	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
Acenaphthene	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
Dibenzofuran	ND	5	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
4-Chlorophenyl-phenylether	ND	5	ug/L
Fluorene	ND	5	ug/L
4-Nitroaniline	ND	25	ug/L
4,6-Dinitro-2-methylphenol	ND	25	ug/L
n-Nitrosodiphenylamine	ND	5	ug/L
1,2-Diphenylhydrazine	ND	5	ug/L
4-Bromophenyl-phenylether	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Anthracene	ND	5	ug/L
Carbazole	ND	5	ug/L
Di-n-butylphthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Pyrene	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
Benzo[a]anthracene	ND	5	ug/L
Chrysene	ND	5	ug/L
bis(2-Ethylhexyl)phthalate	ND	5	ug/L
Di-n-octylphthalate	ND	5	ug/L
Benzo[b]fluoranthene	ND	5	ug/L
Benzo[k]fluoranthene	ND	5	ug/L
Benzo[a]pyrene	ND	5	ug/L
Indeno[1,2,3-cd]pyrene	ND	5	ug/L
Dibenz[a,h]anthracene	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 3

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950509041714

Reported on: 05/18/95 14:33  
Analyzed on: 05/16/95 14:22  
Analyst: PC

## METHOD 8270

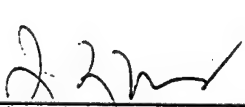
C o m p o u n d	Result	Detection Limit	Units
Benzo[g,h,i]perylene	ND	5	ug/L

S u r r o g a t e	Result	QC Criteria	Units
2-Fluorophenol	66	21-110	% Recovery
Phenol-d5	70	10-110	% Recovery
Nitrobenzene-d5	65	35-114	% Recovery
2-Fluorobiphenyl	61	43-116	% Recovery
2,4,6-Tribromophenol	63	10-123	% Recovery
Terphenyl-d14	75	33-141	% Recovery

Samples in Batch 9505164-11

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

SPL Houston Labs

Data file : /chem/j.i/j950516.b/j129b01.d

Lab Smp Id:

Inj Date : 16-MAY-1995 14:22

Operator : PC

Inst ID: j.i

Smp Info : BLANK-8270W/1X

Misc Info : E129C1/J129B01a/J136CC1

Comment :

Method : /chem/j.i/j950516.b/jclpw.m

Meth Date : 17-May-1995 09:54 patti

Quant Type: ISTD

Cal Date : 16-MAY-1995 13:36

Cal File: j136cc1.d

Als bottle: 1

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: BLK.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	----	----	--	-----	-----	-----	-----	-----
S 3 2-Fluorophenol	112.00	5.833	5.843	(0.724)	501427	99	50 (Q)	
\$ 4 Phenol-d5	99.00	7.445	7.451	(0.924)	1252051	100	53	
* 11 1,4-Dichlorobenzene-d4	152.00	8.055	8.051	(1.000)	308234	40		
\$ 23 Nitrobenzene-d5	82.00	9.265	9.274	(0.854)	802677	65	32	
* 32 Naphthalene-d8	136.00	10.855	10.855	(1.000)	1317031	40		
S 41 2-Fluorobiphenyl	172.00	13.491	13.495	(0.893)	1592569	61	30	
* 48 Acenaphthene-d10	164.00	15.115	15.121	(1.000)	800572	40		
S 61 2,4,6-Tribromophenol	329.70	17.096	17.100	(0.912)	358018	95	47	
* 65 Phenanthrene-d10	188.00	18.740	18.738	(1.000)	1236696	40		
S 72 Terphenyl-d14	244.00	22.711	22.709	(0.893)	1960106	75	37	
* 76 Chrysene-d12	240.00	25.433	25.435	(1.000)	1056137	40		
- 83 Perylene-d12	264.00	29.954	29.953	(1.000)	695497	40		

QC Flag Legend

Q - Qualifier signal failed the ratio test.

Report Date: 17-May-1995 12:06

## SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARYInstrument ID: j.i  
File ID: j129b01.d  
Lab Smp Id:Calibration Date: 05/16/95  
Calibration Time: 1336Analysis Type: SV  
Quant Type: ISTD  
Operator: PCLevel: LOW  
Sample Type: WATER

Method File: /chem/j.i/j950516.b/jclpw.m

Misc Info: E129C1/J129B01a/J136CC1

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	289308	144654	578616	308234	6.54
12 Naphthalene-d8	1152470	576235	2304940	1317031	14.28
18 Acenaphthene-d10	670048	335024	1340096	800572	19.48
65 Phenanthrene-d10	991595	495798	1983190	1236696	24.72
16 Chrysene-d12	817574	408787	1635148	1056137	29.18
13 Perylene-d12	498000	249000	996000	695497	39.66

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	8.05	7.55	8.55	8.06	0.05
12 Naphthalene-d8	10.85	10.35	11.35	10.85	0.00
18 Acenaphthene-d10	15.12	14.62	15.62	15.12	-0.04
65 Phenanthrene-d10	18.74	18.24	19.24	18.74	0.01
16 Chrysene-d12	25.44	24.94	25.94	25.43	-0.01
13 Perylene-d12	29.95	29.45	30.45	29.95	0.00

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

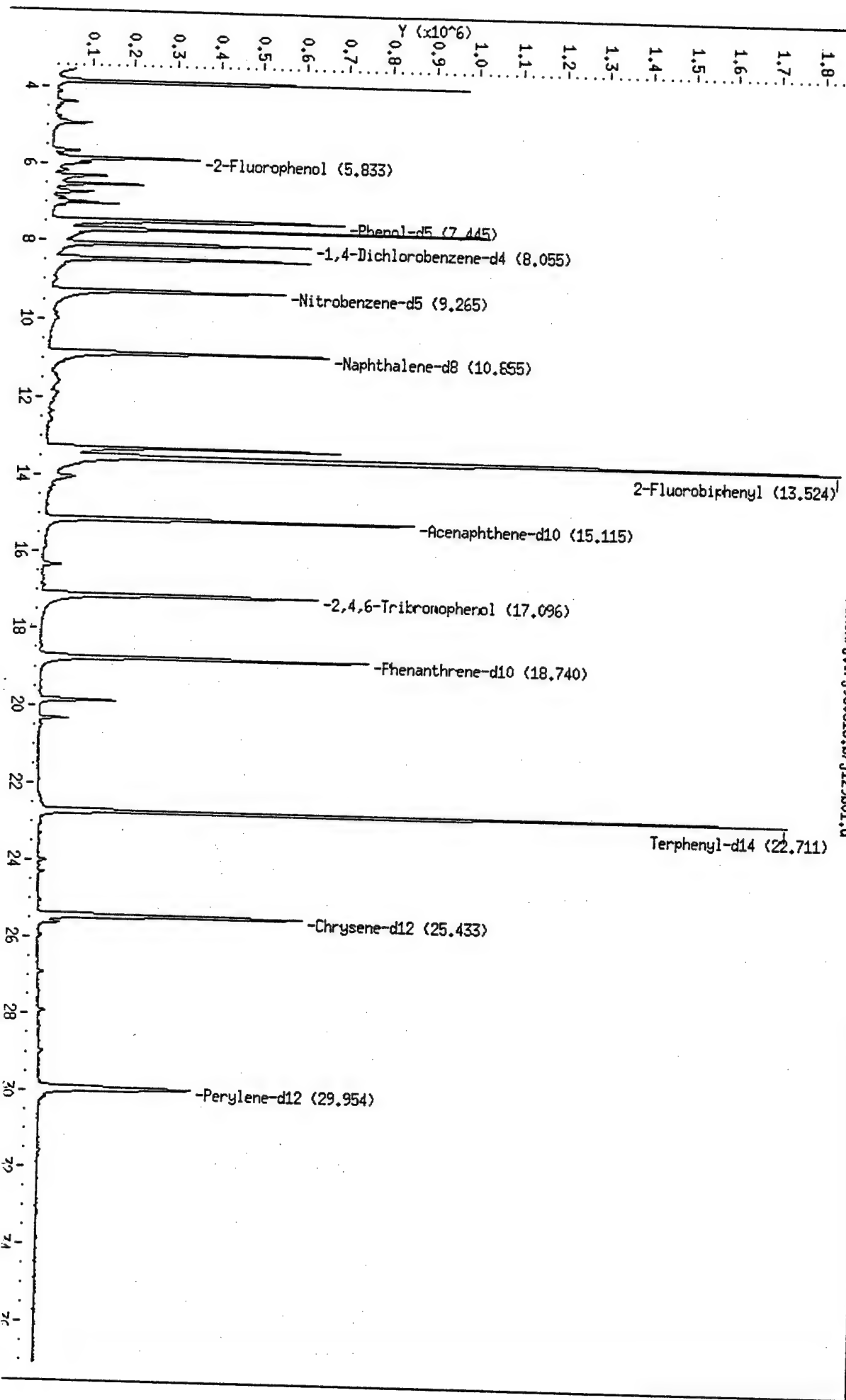
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/j.1/j950516.b/j129b01.d  
Date : 16-MAY-1995 14:22  
Client ID:  
Sample Info: BLANK-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: J.1  
Operator: PC  
Column diameter: 0.25

/chem/j.1/j950516.b/j129b01.d

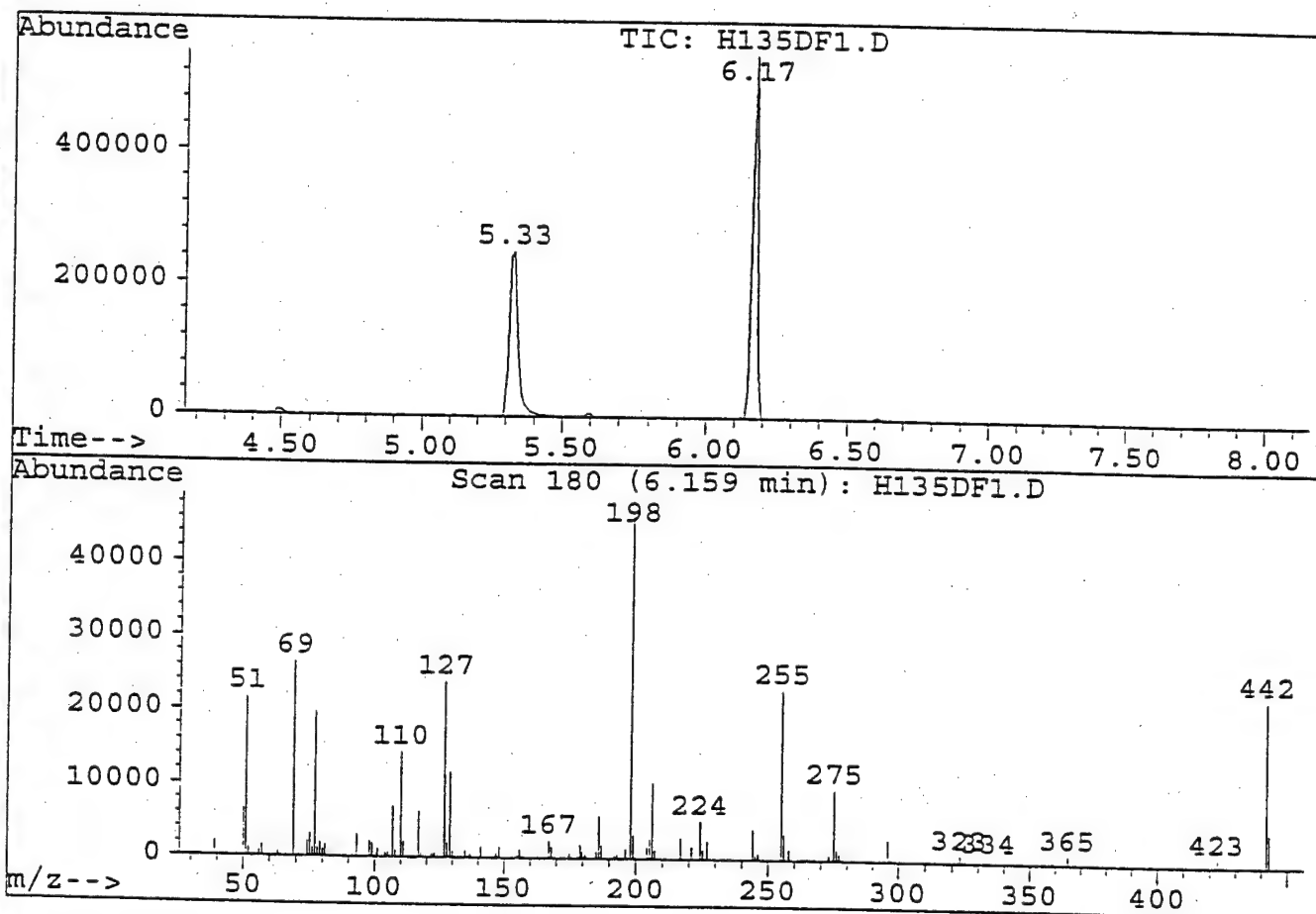


# DFTPP

Data File : C:\HPCHEM\1\DATA\H950515\H135DF1.D  
 Acq On : 15 May 95 3:15 pm  
 Sample : 50 NG DFTPP  
 Misc : 950515 50NG DFTPP

Vial: 1  
 Operator: LH  
 Inst : h  
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\ENVDEF.M  
 Title :



Peak Apex is scan: 180

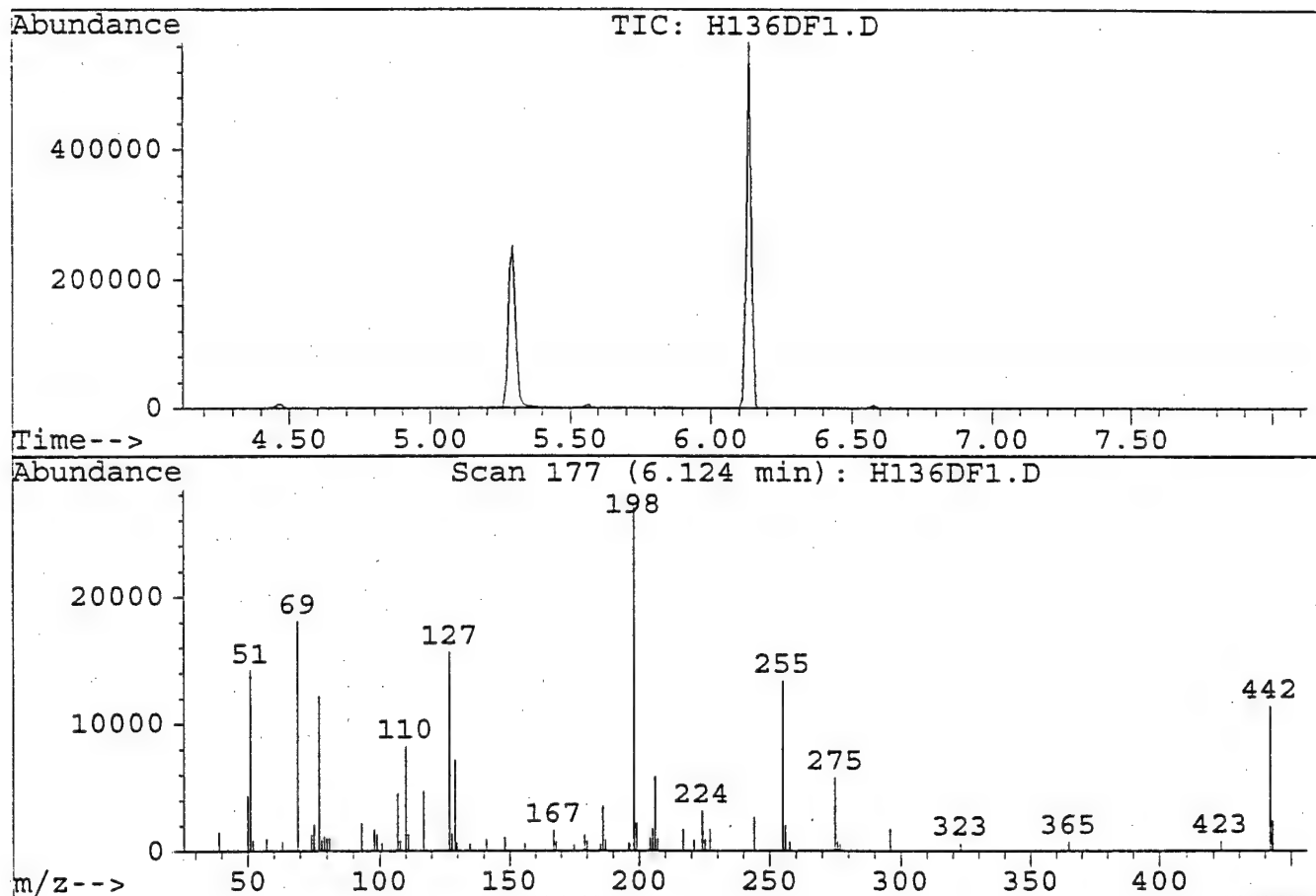
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	46.1	21560	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	56.4	26400	PASS
70	69	0	2	0.0	0	PASS
127	198	40	60	51.0	23840	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	46768	PASS
199	198	5	9	7.0	3269	PASS
275	198	10	30	20.6	9621	PASS
365	198	1	100	2.5	1187	PASS
441	443	0	100	0.0	0	PASS
442	198	40	100	48.2	22536	PASS
443	442	17	23	20.3	4578	PASS

## DFTPP

Data File : C:\HPCHEM\1\DATA\H950516\H136DF1.D  
Acq On : 16 May 95 11:38 am  
Sample : 50 NG DFTPP  
Misc : 950516 50NG DFTPP

Vial: 1  
Operator: LH  
Inst : h  
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\ENVDEF.M  
Title :



Peak Apex is scan: 177

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	52.5	14211	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	66.8	18088	PASS
70	69	0	2	0.0	0	PASS
127	198	40	60	57.8	15657	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	27088	PASS
199	198	5	9	8.2	2212	PASS
275	198	10	30	21.4	5796	PASS
365	198	1	100	2.6	706	PASS
441	443	0	100	0.0	0	PASS
442	198	40	100	42.1	11400	PASS
443	442	17	23	20.9	2388	PASS

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 09-MAY-1995 09:16  
 End Cal Date : 09-MAY-1995 10:40  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950509.b/hclpw.m  
 Cal Date : 09-May-1995 11:30 liping  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/h.i/h950509.b/h129ic5.d  
 Level 2: /chem/h.i/h950509.b/h129ic1.d  
 Level 3: /chem/h.i/h950509.b/h129ic4.d  
 Level 4: /chem/h.i/h950509.b/h129ic3.d  
 Level 5: /chem/h.i/h950509.b/h129ic2.d

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
2 Pyridine	2.41006	2.40386	2.38907	2.47800	2.41269	2.41874	1.421
5 Phenol	2.39101	2.31312	2.07640	1.95389	1.78818	2.10452	11.859
6 Aniline	2.83064	2.99908	2.59872	3.02862	3.12438	2.91629	7.089
7 bis(2-Chloroethyl)ether	2.31651	2.14323	2.29231	1.95672	2.17767	2.17729	6.593
9 2-Chlorophenol	1.66747	1.58616	1.45662	1.30849	1.20333	1.44441	13.254
10 1,3-Dichlorobenzene	1.64128	1.68639	1.50871	1.41113	1.26864	1.50323	11.336
12 1,4-Dichlorobenzene	1.64899	1.54700	1.45540	1.27374	1.16486	1.41800	13.940
13 Benzyl alcohol	1.12279	1.12036	1.06323	1.05735	1.03608	1.07996	3.640
15 1,2-Dichlorobenzene	1.53606	1.40289	1.24634	1.05666	0.91982	1.23236	20.289
16 2-Methylphenol	1.56309	1.53501	1.40501	1.28817	1.20746	1.39975	10.977
17 ortho-Cresol	1.56309	1.53501	1.40501	1.28817	1.20746	1.39975	10.977
18 bis(2-chloroisopropyl)ether	3.44894	3.57470	3.13493	2.90941	2.78033	3.16966	10.729
19 4-Methylphenol	1.62352	1.61320	1.52086	1.52256	1.54556	1.56514	3.174
20 meta,para-Cresol	1.62352	1.61320	1.52086	1.52256	1.54556	1.56514	3.174
21 N-Nitroso-di-n-propylamine	1.35750	1.39064	1.22699	1.12146	1.05780	1.23088	11.738
22 Hexachloroethane	0.70340	0.67436	0.64835	0.57522	0.52191	0.62465	11.935
24 Nitrobenzene	0.45839	0.44288	0.39645	0.36602	0.33918	0.40058	12.552
25 Isophorone	0.99209	0.96473	0.87435	0.86122	0.83731	0.90594	7.524
26 2-Nitrophenol	0.20455	0.19477	0.20163	0.18895	0.19085	0.19615	3.442
27 2,4-Dimethylphenol	0.40898	0.39478	0.35346	0.33046	0.33052	0.36364	10.036
28 Benzoic acid	0.18147	0.19326	0.19055	0.18544	0.24498	0.19914	13.070
29 bis(2-Chloroethoxy)methane	0.57521	0.55410	0.48552	0.45397	0.42182	0.49812	13.090
30 2,4-Dichlorophenol	0.27972	0.26877	0.26126	0.24621	0.23582	0.25835	6.783
31 1,2,4-Trichlorobenzene	0.29016	0.27745	0.26631	0.24217	0.23137	0.26149	9.328
33 Naphthalene	1.12718	1.03054	0.92096	0.80596	0.72709	0.92235	17.594
34 4-Chloroaniline	0.47387	0.45534	0.41045	0.38358	0.37649	0.41995	10.285



## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 09-MAY-1995 09:16  
 End Cal Date : 09-MAY-1995 10:40  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950509.b/hclpw.m  
 Cal Date : 09-May-1995 11:30 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
35 Hexachlorobutadiene	0.13613	0.13345	0.12712	0.11827	0.11250	0.12550	7.967
36 4-Chloro-3-methylphenol	0.32164	0.30868	0.28273	0.26113	0.24831	0.28450	10.867
37 2-Methylnaphthalene	0.68230	0.62928	0.56896	0.48611	0.46235	0.56580	16.453
38 Hexachlorocyclopentadiene	0.35360	0.35554	0.36464	0.34117	0.33405	0.34980	3.472
39 2,4,6-Trichlorophenol	0.41846	0.37763	0.37231	0.41091	0.34892	0.38564	7.455
40 2,4,5-Trichlorophenol	0.39259	0.41530	0.43704	0.35702	0.36256	0.39290	8.685
42 2-Chloronaphthalene	1.28238	1.20163	1.11786	0.99704	0.92962	1.10571	13.057
43 2-Nitroaniline	0.47721	0.47177	0.45468	0.43652	0.42818	0.45367	4.710
44 Dimethylphthalate	1.46192	1.38199	1.32410	1.20519	1.13557	1.30175	10.128
45 2,6-Dinitrotoluene	0.30264	0.28891	0.30839	0.29307	0.28174	0.29495	3.613
46 Acenaphthylene	2.16295	1.99850	1.85335	1.63282	1.42728	1.81498	16.057
47 3-Nitroaniline	0.39441	0.38127	0.38162	0.36979	0.34779	0.37498	4.672
49 Acenaphthene	1.26682	1.15930	1.07599	0.92652	0.82173	1.05007	16.968
50 2,4-Dinitrophenol	0.09054	0.10351	0.13894	0.13956	0.13808	0.12213	19.142
51 4-Nitrophenol	0.11110	0.11550	0.12239	0.11928	0.11548	0.11675	3.667
52 Dibenzofuran	1.71552	1.58530	1.47864	1.25899	1.14726	1.43714	16.204
53 2,4-Dinitrotoluene	0.35257	0.34187	0.35133	0.31997	0.28887	0.33092	8.127
54 Diethylphthalate	1.52452	1.43618	1.34076	1.17235	1.06099	1.30696	14.507
55 4-Chlorophenyl-phenylether	0.57081	0.52399	0.48068	0.39129	0.36517	0.46639	18.665
56 Fluorene	1.27259	1.13363	1.04676	0.84787	0.77646	1.01546	20.077
57 4-Nitroaniline	0.37758	0.35764	0.36677	0.34143	0.32768	0.35422	5.616
58 4,6-Dinitro-2-methylphenol	0.11438	0.12611	0.15630	0.16224	0.15720	0.14325	15.025
59 n-Nitrosodiphenylamine	0.63052	0.62045	0.61510	0.56992	0.56742	0.60068	4.954
60 1,2-Diphenylhydrazine	2.99720	2.79410	2.17962	2.05431	1.92626	2.39030	19.888
62 4-Bromophenyl-phenylether	0.24302	0.24794	0.24045	0.22628	0.23240	0.23802	3.631
63 Hexachlorobenzene	0.27435	0.27465	0.27505	0.25612	0.25445	0.26692	3.987
64 Pentachlorophenol	0.14566	0.15130	0.16365	0.16382	0.16618	0.15812	5.743
66 Phenanthrene	1.29728	1.26559	1.15725	1.05110	1.03326	1.16089	10.366
67 Anthracene	1.29922	1.23640	1.14592	1.02890	0.98471	1.13903	11.708
68 Carbazole	1.20614	1.16288	1.12200	1.05786	1.01303	1.11238	7.003
69 Di-n-butylphthalate	1.90556	1.85945	1.74038	1.53164	1.48600	1.70461	11.105
70 Fluoranthene	1.05953	1.01745	1.00967	0.95799	0.89059	0.98705	6.573
71 Pyrene	1.75360	1.68190	1.45578	1.33653	1.32945	1.51145	13.003
73 Butylbenzylphthalate	1.06470	1.08240	1.01807	0.90866	0.94707	1.00418	7.445

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 09-MAY-1995 09:16  
 End Cal Date : 09-MAY-1995 10:40  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950509.b/hclpw.m  
 Cal Date : 09-May-1995 11:30 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
74 3,3'-Dichlorobenzidine	0.44121	0.46249	0.49243	0.46831	0.46696	0.46628	3.912
75 Benzo[a]anthracene	1.22290	1.21720	1.22069	1.16626	1.15581	1.19657	2.734
77 Chrysene	1.11974	1.14332	1.01521	0.91533	0.89590	1.01790	11.149
78 bis(2-Ethylhexyl)phthalate	1.45828	1.40387	1.24000	1.02495	1.05184	1.23579	15.983
79 Di-n-octylphthalate	3.52113	3.69192	3.47991	3.09653	3.40536	3.43897	6.351
80 Benzo[b]fluoranthene	1.51946	1.54611	1.62811	1.82076	1.53453	1.60979	7.779
81 Benzo[k]fluoranthene	1.84621	1.90393	1.70062	1.40311	1.84671	1.74011	11.657
82 Benzo[a]pyrene	1.38484	1.36102	1.41258	1.34400	1.36639	1.37377	1.902
84 Indeno[1,2,3-cd]pyrene	1.68621	1.55947	1.75364	1.60745	1.56791	1.63494	5.086
85 Dibenzo[a,h]anthracene	1.42134	1.29988	1.48445	1.33260	1.30268	1.36819	5.956
86 Benzo[g,h,i]perylene	1.34573	1.26579	1.43110	1.33526	1.29319	1.33422	4.723
96 Benzidine	0.03245	0.02965	0.02654	0.02518	0.02562	0.02789	11.086
\$ 3 2-Fluorophenol	1.69211	1.65043	1.61375	1.53846	1.41293	1.58154	6.948
\$ 4 Phenol-d5	2.19069	2.16877	1.98908	1.84375	1.72833	1.98412	10.140
\$ 23 Nitrobenzene-d5	0.46273	0.43969	0.41626	0.38840	0.38088	0.41759	8.232
\$ 41 2-Fluorobiphenyl	1.41509	1.32452	1.26278	1.09777	1.02145	1.22432	13.239
\$ 61 2,4,6-Tribromophenol	0.13260	0.13493	0.14361	0.13882	0.14604	0.13920	4.067
\$ 72 Terphenyl-d14	1.11232	1.09225	0.94628	0.85028	0.89891	0.98001	11.927

SPL Houston Labs

Data file : /chem/h.i/h950509.b/h129ic5.d

Lab Smp Id:

Inj Date : 09-MAY-1995 11:05

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950509 STD020

Comment :

Method : /chem/h.i/h950509.b/hclpw.m

Meth Date : 09-May-1995 11:38 liping

Quant Type: ISTD

Cal Date : 09-MAY-1995 09:16

Cal File: h129ic1.d

Als bottle: 6

Calibration Sample, Level: 1

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
2 Pyridine	79.00	2.897	2.897	(0.600)	525408	20	20
5 Phenol	94.00	4.497	4.497	(0.931)	521255	20	23
6 Aniline	93.00	4.556	4.556	(0.944)	617097	20	19
7 bis(2-Chloroethyl)ether	93.00	4.592	4.592	(0.951)	505015	20	21
9 2-Chlorophenol	128.00	4.663	4.663	(0.966)	363520	20	23
10 1,3-Dichlorobenzene	146.00	4.793	4.793	(0.993)	357810	20	22
12 1,4-Dichlorobenzene	146.00	4.841	4.841	(1.002)	359490	20	23
13 Benzyl alcohol	108.00	4.935	4.935	(1.022)	244776	20	21
15 1,2-Dichlorobenzene	146.00	5.007	5.007	(1.037)	334872	20	25
16 2-Methylphenol	108.00	5.042	5.042	(1.044)	340763	20	22
18 bis(2-chloroisopropyl)ether	45.00	5.089	5.089	(1.054)	751892	20	22
19 4-Methylphenol	108.00	5.172	5.172	(1.071)	353937	20	21
21 N-Nitroso-di-n-propylamine	70.00	5.208	5.208	(1.079)	295943	20	22
22 Hexachloroethane	117.00	5.303	5.303	(1.098)	153345	20	22
24 Nitrobenzene	77.00	5.362	5.362	(0.888)	369061	20	23
25 Isophorone	82.00	5.575	5.575	(0.923)	798760	20	22
26 2-Nitrophenol	139.00	5.670	5.670	(0.939)	164687	20	21 (a)
27 2,4-Dimethylphenol	107.00	5.682	5.682	(0.941)	329281	20	22
28 Benzoic acid	122.00	5.777	5.777	(0.957)	146104	20	18 (a)
29 bis(2-Chloroethoxy)methane	93.00	5.777	5.777	(0.957)	463121	20	23
30 2,4-Dichlorophenol	162.00	5.895	5.895	(0.976)	225208	20	22
31 1,2,4-Trichlorobenzene	180.00	5.990	5.990	(0.992)	233615	20	22
33 Naphth:lene	128.00	6.049	6.049	(1.002)	907530	20	24
34 4-Chloroaniline	127.00	6.097	6.097	(1.010)	381531	20	22
35 Hexachlorobutadiene	225.00	6.227	6.227	(1.031)	109599	20	22
36 4-Chloro-3-methylphenol	107.00	6.559	6.559	(1.086)	258962	20	23
37 2-Methylnaphthalene	142.00	6.737	6.737	(1.116)	549342	20	24
38 Hexachlorocyclopentadiene	237.00	6.962	6.962	(0.891)	119424	20	20
39 2,4,6-Trichlorophenol	196.00	7.033	7.033	(0.900)	141331	20	22

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	7.068	7.068	(0.904)	132594	20	20
42 2-Chloronaphthalene	162.00	7.223	7.223	(0.924)	433114	20	23
43 2-Nitroaniline	65.00	7.329	7.329	(0.938)	161174	20	21 (a)
44 Dimethylphthalate	163.00	7.542	7.542	(0.965)	493751	20	22
45 2,6-Dinitrotoluene	165.00	7.614	7.614	(0.974)	102213	20	20
46 Acenaphthylene	152.00	7.649	7.649	(0.979)	730517	20	24
47 3-Nitroaniline	138.00	7.756	7.756	(0.992)	133210	20	21 (a)
49 Acenaphthene	153.00	7.839	7.839	(1.003)	427857	20	24
50 2,4-Dinitrophenol	184.00	7.862	7.862	(1.006)	30578	20	15 (aQ)
51 4-Nitrophenol	109.00	7.898	7.898	(1.011)	37524	20	19 (a)
52 Dibenzofuran	168.00	8.005	8.005	(1.024)	579402	20	24
53 2,4-Dinitrotoluene	165.00	8.017	8.017	(1.026)	119076	20	21
54 Diethylphthalate	149.00	8.265	8.265	(1.058)	514893	20	23
55 4-Chlorophenyl-phenylether	204.00	8.336	8.336	(1.067)	192787	20	24
56 Fluorene	166.00	8.348	8.348	(1.068)	429807	20	25
57 4-Nitroaniline	138.00	8.372	8.372	(1.071)	127525	20	21 (a)
58 4,6-Dinitro-2-methylphenol	198.00	8.431	8.431	(0.906)	47897	20	16 (a)
59 n-Nitrosodiphenylamine	169.00	8.467	8.467	(0.910)	264023	20	21
60 1,2-Diphenylhydrazine	77.00	8.502	8.502	(0.913)	1255050	20	25
62 4-Bromophenyl-phenylether	248.00	8.834	8.834	(0.949)	101762	20	20
63 Hexachlorobenzene	283.70	9.000	9.000	(0.967)	114880	20	20
64 Pentachlorophenol	265.50	9.178	9.178	(0.986)	60993	20	18 (a)
66 Phenanthrene	178.00	9.332	9.332	(1.003)	543224	20	22
67 Anthracene	178.00	9.379	9.379	(1.008)	544035	20	23
68 Carbazole	167.00	9.533	9.533	(1.024)	505058	20	22
69 Di-n-butylphthalate	149.00	9.913	9.913	(1.065)	797937	20	22
70 Fluoranthene	202.00	10.552	10.552	(1.134)	443667	20	21
71 Pyrene	202.00	10.789	10.789	(0.878)	448814	20	23
73 Butylbenzylphthalate	149.00	11.524	11.524	(0.938)	272498	20	21
74 3,3'-Dichlorobenzidine	252.00	12.211	12.211	(0.994)	112924	20	19
75 Benzo[a]anthracene	228.00	12.259	12.259	(0.998)	312988	20	20
77 Chrysene	228.00	12.318	12.318	(1.003)	286584	20	22
78 bis(2-Ethylhexyl)phthalate	149.00	12.318	12.318	(1.003)	373230	20	24
79 Di-n-octylphthalate	149.00	13.290	13.290	(0.907)	590658	20	20
80 Benzo[b]fluoranthene	252.00	14.001	14.001	(0.956)	254884	20	19
81 Benzo[k]fluoranthene	252.00	14.036	14.036	(0.958)	309695	20	21
82 Benzo[a]pyrene	252.00	14.546	14.546	(0.993)	232302	20	20
84 Indeno[1,2,3-cd]pyrene	276.00	16.845	16.845	(1.150)	282855	20	21
85 Dibenz[a,h]anthracene	278.00	16.881	16.881	(1.152)	238424	20	21
86 Benzo[g,h,i]perylene	276.00	17.473	17.473	(1.192)	225742	20	20
\$ 3 2-Fluorophenol	112.00	3.774	3.774	(0.782)	368892	20	21
\$ 4 Phenol-d5	99.00	4.497	4.497	(0.931)	477585	20	22
\$ 61 2,4,6-Tribromophenol	329.70	8.621	8.621	(0.926)	55527	20	19
\$ 23 Nitrobenzene-d5	82.00	5.338	5.338	(0.884)	372555	20	22
\$ 41 2-Fluorobiphenyl	172.00	7.116	7.116	(0.911)	477934	20	23
\$ 72 Terphenyl-d14	244.00	10.944	10.944	(0.891)	284685	20	23
* 11 1,4-Dichlorobenzene-d4	152.00	4.829	4.829	(1.000)	436013	40	
* 32 Naphthalene-d8	136.00	6.037	6.037	(1.000)	1610264	40	
* 48 Acenaphthene-d10	164.00	7.815	7.815	(1.000)	675483	40	

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	9.308	9.308	(1.000)	837481	40	
* 76 Chrysene-d12	240.00	12.283	12.283	(1.000)	511878	40	
* 83 Perylene-d12	264.00	14.653	14.653	(1.000)	335493	40	
17 ortho-Cresol	108.00	5.042	5.042	(1.044)	340763	20	22
20 meta,para-Cresol	108.00	5.172	5.172	(1.071)	353937	20	21
96 Benzidine	184.00	10.007	10.007	(0.815)	8306	20	23

#### QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h129ic5.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950509.b/hclpw.m  
Misc Info: 950509 STD020

Calibration Date: 05/09/95  
Calibration Time: 0916

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	357593	178796	715186	436013	21.93
32 Naphthalene-d8	1345059	672530	2690118	1610264	19.72
48 Acenaphthene-d10	554554	277277	1109108	675483	21.81
65 Phenanthrene-d10	652753	326376	1305506	837481	28.30
76 Chrysene-d12	397498	198749	794996	511878	28.77
83 Perylene-d12	265183	132592	530366	335493	26.51

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.83	4.33	5.33	4.83	0.07
32 Naphthalene-d8	6.03	5.53	6.53	6.04	0.05
48 Acenaphthene-d10	7.81	7.31	8.31	7.82	0.04
65 Phenanthrene-d10	9.32	8.82	9.82	9.31	-0.09
76 Chrysene-d12	12.29	11.79	12.79	12.28	-0.07
83 Perylene-d12	14.65	14.15	15.15	14.65	0.02

AREA UPPER LIMIT = +100% of internal standard area.

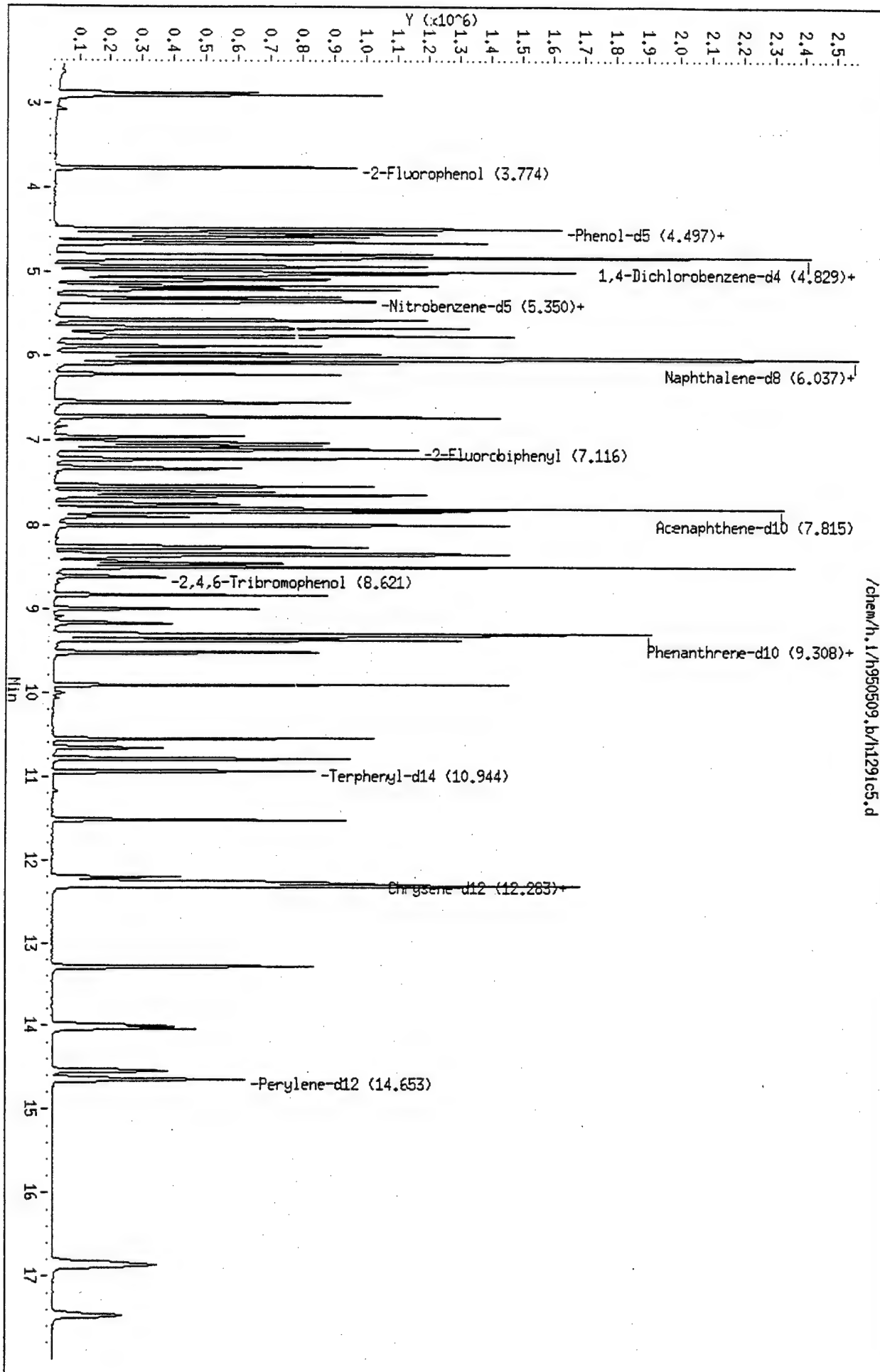
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950509.b/h1291c5.d  
Date : 09-MAY-95 11:05  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950509.b/h129ic1.d

Lab Smp Id:

inj Date : 09-MAY-1995 09:16

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950509 STD050

Comment :

Method : /chem/h.i/h950509.b/hclpw.m

Meth Date : 09-May-1995 11:38 liping

Quant Type: ISTD

Cal Date : 09-MAY-1995 09:16

Cal File: h129ic1.d

Als bottle: 2

Continuing Calibration Sample

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
							CAL-AMT	ON-COL
							( ng)	( ng)
2 Pyridine		79.00	2.906	2.906	(0.602)	1074503	50	50
5 Phenol		94.00	4.506	4.506	(0.934)	1033945	50	55
6 Aniline		93.00	4.553	4.553	(0.944)	1340564	50	51
7 bis(2-Chloroethyl)ether		93.00	4.589	4.589	(0.951)	958006	50	49
9 2-Chlorophenol		128.00	4.671	4.671	(0.968)	708998	50	55
10 1,3-Dichlorobenzene		146.00	4.802	4.802	(0.995)	753802	50	56
12 1,4-Dichlorobenzene		146.00	4.837	4.837	(1.002)	691496	50	54
13 Benzyl alcohol		108.00	4.944	4.944	(1.025)	500791	50	52
15 1,2-Dichlorobenzene		146.00	5.015	5.015	(1.039)	627080	50	57
16 2-Methylphenol		108.00	5.039	5.039	(1.044)	686134	50	55
18 bis(2-chloroisopropyl)ether		45.00	5.086	5.086	(1.054)	1597859	50	56
19 4-Methylphenol		108.00	5.181	5.181	(1.074)	721085	50	52
21 N-Nitroso-di-n-propylamine		70.00	5.217	5.217	(1.081)	621605	50	56
22 Hexachloroethane		117.00	5.300	5.300	(1.098)	301431	50	54
24 Nitrobenzene		77.00	5.371	5.371	(0.890)	744623	50	55
25 Isophorone		82.00	5.584	5.584	(0.925)	1622021	50	53
26 2-Nitrophenol		139.00	5.667	5.667	(0.939)	327473	50	50
27 2,4-Dimethylphenol		107.00	5.691	5.691	(0.943)	663756	50	54
28 Benzoic acid		122.00	5.809	5.809	(0.963)	324934	50	48 (a)
29 bis(2-Chloroethoxy)methane		93.00	5.785	5.785	(0.959)	931625	50	56
30 2,4-Dichlorophenol		162.00	5.892	5.892	(0.976)	451886	50	52
31 1,2,4-Trichlorobenzene		180.00	5.987	5.987	(0.992)	466477	50	53
33 Naphthalene		128.00	6.058	6.058	(1.004)	1732678	50	56
34 4-Chloroaniline		127.00	6.105	6.105	(1.012)	765566	50	54
35 Hexachlorobutadiene		225.00	6.236	6.236	(1.033)	224375	50	53
36 4-Chloro-3-methylphenol		107.00	6.568	6.568	(1.088)	518999	50	54
37 2-Methylnaphthalene		142.00	6.733	6.733	(1.116)	1058020	50	56
38 Hexachlorocyclopentadiene		237.00	6.970	6.970	(0.892)	246461	50	51
39 2,4,6-Trichlorophenol		196.00	7.042	7.042	(0.901)	261768	50	49



Compounds	QUANT SIG				RESPONSE	AMOUNTS	
	MASS	RT	EXP RT	REL RT		CAL-AMT ( ng)	ON-COL ( ng)
-----	----	==	=====	=====	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	7.077	7.077	(0.906)	287882	50	53
42 2-Chloronaphthalene	162.00	7.231	7.231	(0.926)	832959	50	54
43 2-Nitroaniline	65.00	7.338	7.338	(0.939)	327026	50	52
44 Dimethylphthalate	163.00	7.551	7.551	(0.967)	957987	50	53
45 2,6-Dinitrotoluene	165.00	7.622	7.622	(0.976)	200267	50	49
46 Acenaphthylene	152.00	7.658	7.658	(0.980)	1385346	50	55
47 3-Nitroaniline	138.00	7.764	7.764	(0.994)	264292	50	51
49 Acenaphthene	153.00	7.847	7.847	(1.005)	803619	50	55
50 2,4-Dinitrophenol	184.00	7.859	7.859	(1.006)	71750	50	42(a)
51 4-Nitrophenol	109.00	7.907	7.907	(1.012)	80065	50	49
52 Dibenzofuran	168.00	8.001	8.001	(1.024)	1098917	50	55
53 2,4-Dinitrotoluene	165.00	8.013	8.013	(1.026)	236980	50	52(M)
54 Diethylphthalate	149.00	8.274	8.274	(1.059)	995548	50	55
55 4-Chlorophenyl-phenylether	204.00	8.345	8.345	(1.068)	363229	50	56
56 Fluorene	166.00	8.357	8.357	(1.070)	785822	50	56
57 4-Nitroaniline	138.00	8.392	8.392	(1.074)	247912	50	50
58 4,6-Dinitro-2-methylphenol	198.00	8.440	8.440	(0.906)	102898	50	44(a)
59 n-Nitrosodiphenylamine	169.00	8.475	8.475	(0.910)	506252	50	52
60 1,2-Diphenylhydrazine	77.00	8.511	8.511	(0.913)	2279818	50	58
62 4-Bromophenyl-phenylether	248.00	8.843	8.843	(0.949)	202302	50	52
63 Hexachlorobenzene	283.70	9.009	9.009	(0.967)	224099	50	51
64 Pentachlorophenol	265.50	9.175	9.175	(0.985)	123452	50	48(a)
66 Phenanthrene	178.00	9.341	9.341	(1.003)	1032649	50	54
67 Anthracene	178.00	9.388	9.388	(1.008)	1008829	50	54
68 Carbazole	167.00	9.530	9.530	(1.023)	948842	50	52
69 Di-n-butylphthalate	149.00	9.921	9.921	(1.065)	1517202	50	54
70 Fluoranthene	202.00	10.561	10.561	(1.134)	830177	50	52
71 Pyrene	202.00	10.798	10.798	(0.879)	835689	50	56
73 Butylbenzylphthalate	149.00	11.533	11.533	(0.938)	537817	50	54
74 3,3'-Dichlorobenzidine	252.00	12.220	12.220	(0.994)	229798	50	50
75 Benzo[a]anthracene	228.00	12.268	12.268	(0.998)	604795	50	51
77 Chrysene	228.00	12.327	12.327	(1.003)	568084	50	56
78 bis(2-Ethylhexyl)phthalate	149.00	12.327	12.327	(1.003)	697543	50	57
79 Di-n-octylphthalate	149.00	13.299	13.299	(0.908)	1223792	50	54
80 Benzo[b]fluoranthene	252.00	14.010	14.010	(0.956)	512501	50	48
81 Benzo[k]fluoranthene	252.00	14.045	14.045	(0.959)	631111	50	55
82 Benzo[a]pyrene	252.00	14.555	14.555	(0.994)	451150	50	50
84 Indeno[1,2,3-cd]pyrene	276.00	16.854	16.854	(1.150)	516931	50	48
85 Dibenz[a,h]anthracene	278.00	16.889	16.889	(1.153)	430882	50	48
86 Benzo[g,h,i]perylene	276.00	17.494	17.494	(1.194)	419581	50	47
\$ 3 2-Fluorophenol	112.00	3.771	3.771	(0.781)	737729	50	52
\$ 4 Phenol-d5	99.00	4.494	4.494	(0.931)	969420	50	55
\$ 61 2,4,6-Tribromophenol	329.70	8.629	8.629	(0.926)	110093	50	48
\$ 23 Nitrobenzene-d5	82.00	5.347	5.347	(0.886)	739261	50	53
\$ 41 2-Fluorobiphenyl	172.00	7.113	7.113	(0.910)	918147	50	54
\$ 72 Terphenyl-d14	244.00	10.952	10.952	(0.891)	542711	50	56
* 11 1,4-Dichlorobenzene-d4	152.00	4.826	4.826	(1.000)	357593	40	
* 32 Naphthalene-d8	136.00	6.034	6.034	(1.000)	1345059	40	
* 48 Acenaphthene-d10	164.00	7.812	7.812	(1.000)	554554	40	

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	9.317	9.317	(1.000)	652753	40	
76 Chrysene-d12	240.00	12.291	12.291	(1.000)	397498	40	
83 Perylene-d12	264.00	14.649	14.649	(1.000)	265183	40	
17 ortho-Cresol	108.00	5.039	5.039	(1.044)	686134	50	55
20 meta,para-Cresol	108.00	5.181	5.181	(1.074)	721085	50	52
96 Benzidine	184.00	10.016	10.016	(0.815)	14734	50	53

QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h129ic1.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950509.b/hclpw.m  
Misc Info: 950509 STD050

Calibration Date: 05/09/95  
Calibration Time: 0916

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	357593	178796	715186	357593	0.00
32 Naphthalene-d8	1345059	672530	2690118	1345059	0.00
48 Acenaphthene-d10	554554	277277	1109108	554554	0.00
65 Phenanthrene-d10	652753	326376	1305506	652753	0.00
76 Chrysene-d12	397498	198749	794996	397498	0.00
83 Perylene-d12	265183	132592	530366	265183	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.83	4.33	5.33	4.83	0.00
32 Naphthalene-d8	6.03	5.53	6.53	6.03	0.00
48 Acenaphthene-d10	7.81	7.31	8.31	7.81	0.00
65 Phenanthrene-d10	9.32	8.82	9.82	9.32	0.00
76 Chrysene-d12	12.29	11.79	12.79	12.29	0.00
83 Perylene-d12	14.65	14.15	15.15	14.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

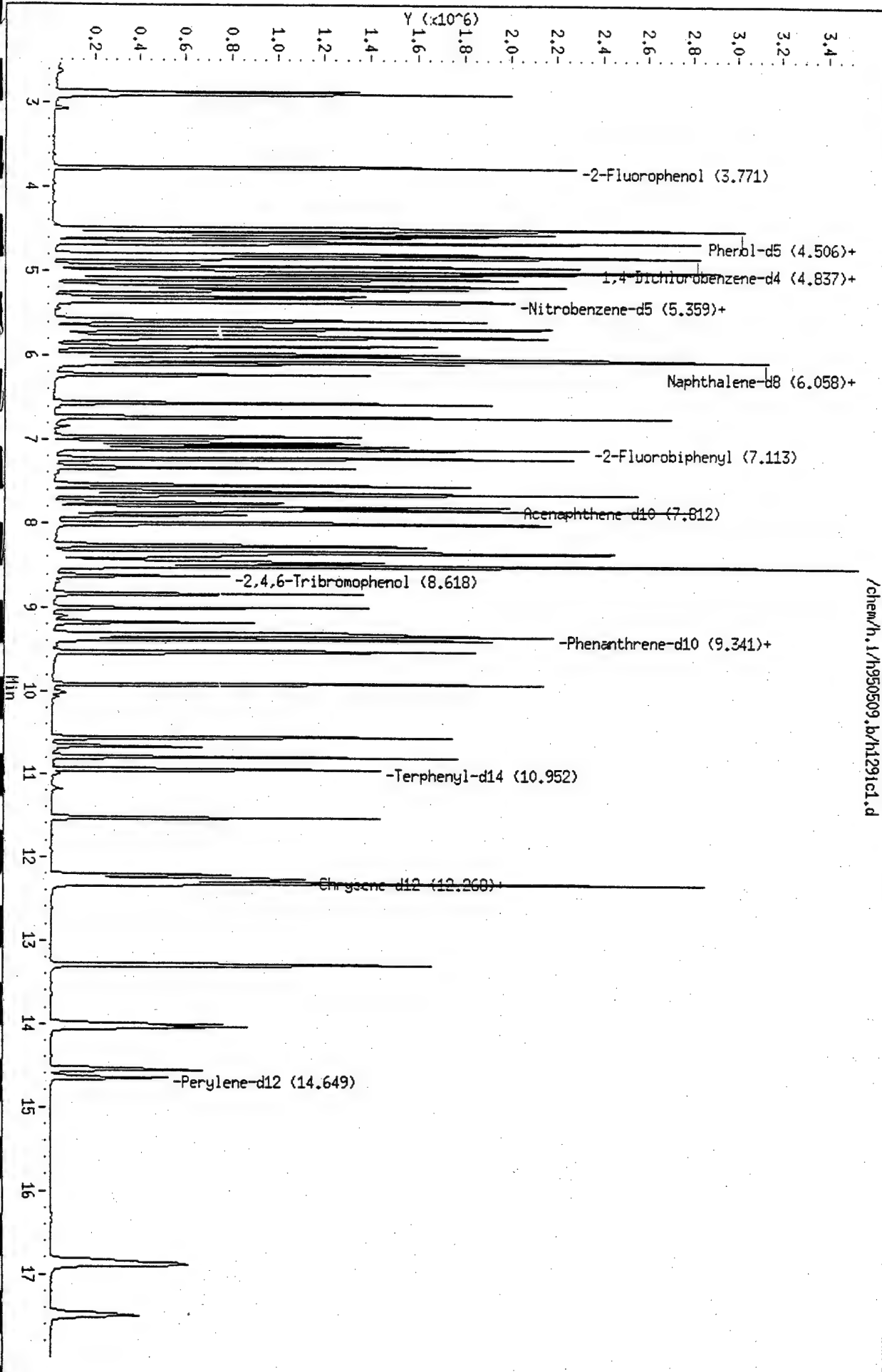
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950509.b/h1291c1.d  
Date: 09-MAY-95 09:16

Client ID:  
Sample Info: STD-82704/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950509.b/h129ic4.d

Lab Smp Id:

Inj Date : 09-MAY-1995 10:40

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950509 STD080

Comment :

Method : /chem/h.i/h950509.b/hclpw.m

Meth Date : 09-May-1995 11:38 liping

Cal Date : 09-MAY-1995 09:16

Quant Type: ISTD

Cal File: h129ic1.d

Als bottle: 5

Calibration Sample, Level: 3

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG				RESPONSE	AMOUNTS	
	MASS	RT	EXP RT	REL RT		CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
2 Pyridine	79.00	2.893	2.893	(0.600)	1531069	80	79
5 Phenol	94.00	4.517	4.517	(0.936)	1330688	80	79
6 Aniline	93.00	4.564	4.564	(0.946)	1665428	80	71
7 bis(2-Chloroethyl)ether	93.00	4.600	4.600	(0.953)	1469057	80	84
9 2-Chlorophenol	128.00	4.671	4.671	(0.968)	933495	80	81
10 1,3-Dichlorobenzene	146.00	4.801	4.801	(0.995)	966876	80	80
12 1,4-Dichlorobenzene	146.00	4.849	4.849	(1.005)	932712	80	82
13 Benzyl alcohol	108.00	4.944	4.944	(1.025)	681386	80	79
15 1,2-Dichlorobenzene	146.00	5.015	5.015	(1.039)	798735	80	81
16 2-Methylphenol	108.00	5.050	5.050	(1.047)	900423	80	80
18 bis(2-chloroisopropyl)ether	45.00	5.086	5.086	(1.054)	2009066	80	79
19 4-Methylphenol	108.00	5.181	5.181	(1.074)	974667	80	78
21 N-Nitroso-di-n-propylamine	70.00	5.228	5.228	(1.083)	786336	80	80
22 Hexachloroethane	117.00	5.311	5.311	(1.101)	415501	80	83
24 Nitrobenzene	77.00	5.370	5.370	(0.890)	943215	80	79
25 Isophorone	82.00	5.595	5.595	(0.927)	2080242	80	77
26 2-Nitrophenol	139.00	5.678	5.678	(0.941)	479715	80	82
27 2,4-Dimethylphenol	107.00	5.690	5.690	(0.943)	840939	80	78
28 Benzoic acid	122.00	5.832	5.832	(0.967)	453359	80	76 (M)
29 bis(2-Chloroethoxy)methane	93.00	5.785	5.785	(0.959)	1155143	80	78
30 2,4-Dichlorophenol	162.00	5.903	5.903	(0.978)	621576	80	81
31 1,2,4-Trichlorobenzene	180.00	5.998	5.998	(0.994)	633592	80	81
33 Naphthalene	128.00	6.057	6.057	(1.004)	2191124	80	80
34 4-Chloroaniline	127.00	6.105	6.105	(1.012)	976525	80	78
35 Hexachlorobutadiene	225.00	6.235	6.235	(1.033)	302447	80	81
36 4-Chloro-3-methylphenol	107.00	6.567	6.567	(1.088)	672673	80	80
37 2-Methylnaphthalene	142.00	6.745	6.745	(1.118)	1353663	80	80
38 Hexachlorocyclopentadiene	237.00	6.970	6.970	(0.892)	346967	80	83
39 2,4,6-Trichlorophenol	196.00	7.041	7.041	(0.901)	354261	80	77

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
40 2,4,5-Trichlorophenol	196.00	7.077	7.077	(0.906)	415854	80	89
42 2-Chloronaphthalene	162.00	7.231	7.231	(0.926)	1063680	80	81
43 2-Nitroaniline	65.00	7.337	7.337	(0.939)	432639	80	80
44 Dimethylphthalate	163.00	7.551	7.551	(0.967)	1259921	80	81
45 2,6-Dinitrotoluene	165.00	7.622	7.622	(0.976)	293443	80	84
46 Acenaphthylene	152.00	7.657	7.657	(0.980)	1763516	80	82
47 3-Nitroaniline	138.00	7.764	7.764	(0.994)	363124	80	81
49 Acenaphthene	153.00	7.847	7.847	(1.005)	1023838	80	82
50 2,4-Dinitrophenol	184.00	7.871	7.871	(1.008)	132206	80	91(Q)
51 4-Nitrophenol	109.00	7.918	7.918	(1.014)	116458	80	84
52 Dibenzofuran	168.00	8.013	8.013	(1.026)	1406973	80	82
53 2,4-Dinitrotoluene	165.00	8.025	8.025	(1.027)	334298	80	85
54 Diethylphthalate	149.00	8.273	8.273	(1.059)	1275778	80	82
55 4-Chlorophenyl-phenylether	204.00	8.345	8.345	(1.068)	457383	80	82
56 Fluorene	166.00	8.356	8.356	(1.070)	996022	80	82
57 4-Nitroaniline	138.00	8.392	8.392	(1.074)	348990	80	83
58 4,6-Dinitro-2-methylphenol	198.00	8.451	8.451	(0.907)	172733	80	87
59 n-Nitrosodiphenylamine	169.00	8.475	8.475	(0.910)	679753	80	82
60 1,2-Diphenylhydrazine	77.00	8.510	8.510	(0.913)	2408725	80	73
62 4-Bromophenyl-phenylether	248.00	8.842	8.842	(0.949)	265724	80	81
63 Hexachlorobenzene	283.70	9.008	9.008	(0.967)	303961	80	82
64 Pentachlorophenol	265.50	9.186	9.186	(0.986)	180851	80	83
66 Phenanthrene	178.00	9.340	9.340	(1.003)	1278888	80	80
67 Anthracene	178.00	9.387	9.387	(1.008)	1266364	80	80
68 Carbazole	167.00	9.530	9.530	(1.023)	1239930	80	81
69 Di-n-butylphthalate	149.00	9.921	9.921	(1.065)	1923310	80	82
70 Fluoranthene	202.00	10.561	10.561	(1.134)	1115799	80	82
71 Pyrene	202.00	10.798	10.798	(0.878)	1140541	80	77
73 Butylbenzylphthalate	149.00	11.532	11.532	(0.938)	797614	80	81
74 3,3'-Dichlorobenzidine	252.00	12.220	12.220	(0.994)	385799	80	84
75 Benzo[a]anthracene	228.00	12.267	12.267	(0.998)	956361	80	82
77 Chrysene	228.00	12.338	12.338	(1.004)	795378	80	80
78 bis(2-Ethylhexyl)phthalate	149.00	12.326	12.326	(1.003)	971489	80	80
79 Di-n-octylphthalate	149.00	13.298	13.298	(0.908)	1993743	80	81
80 Benzo[b]fluoranthene	252.00	14.009	14.009	(0.956)	932791	80	81
81 Benzo[k]fluoranthene	252.00	14.056	14.056	(0.960)	974335	80	78
82 Benzo[a]pyrene	252.00	14.566	14.566	(0.994)	809309	80	82
84 Indeno[1,2,3-cd]pyrene	276.00	16.877	16.877	(1.152)	1004714	80	86
85 Dibenz[a,h]anthracene	278.00	16.912	16.912	(1.155)	850485	80	87
86 Benzo[g,h,i]perylene	276.00	17.517	17.517	(1.196)	819921	80	86
\$ 3 2-Fluorophenol	112.00	3.770	3.770	(0.781)	1034192	80	82
\$ 4 Phenol-d5	99.00	4.505	4.505	(0.934)	1274731	80	80
\$ 61 2,4,6-Tribromophenol	329.70	8.629	8.629	(0.926)	158710	80	82
\$ 23 Nitrobenzene-d5	82.00	5.346	5.346	(0.886)	990370	80	80
\$ 41 2-Fluorobiphenyl	172.00	7.124	7.124	(0.912)	1201572	80	82
\$ 72 Terphenyl-d14	244.00	10.952	10.952	(0.891)	741370	80	77
* 11 1,4-Dichlorobenzene-d4	152.00	4.825	4.825	(1.000)	320432	40	
* 32 Naphthalene-d8	136.00	6.034	6.034	(1.000)	1189591	40	
* 48 Acenaphthene-d10	164.00	7.811	7.811	(1.000)	475765	40	

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
*****	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d1	188.00	9.316	9.316	(1.000)	552555	40	
* 76 Chrysene-d12	240.00	12.291	12.291	(1.000)	391729	40	
* 83 Perylene-d12	264.00	14.649	14.649	(1.000)	286465	40	
17 ortho-Cresol	108.00	5.050	5.050	(1.047)	900423	80	80
20 meta,para-Cresol	108.00	5.181	5.181	(1.074)	974667	80	78
96 Benzidine	184.00	10.015	10.015	(0.815)	20794	80	76

#### QC Flag Legend

Q - Qualifier signal failed the ratio test.  
M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i

Lab File ID: h129ic4.d

Lab Smp Id:

Analysis Type: SV

Quant Type: ISTD

Operator: LH

Method File: /chem/h.i/h950509.b/hclpw.m

Misc Info: 950509 STD080

Calibration Date: 05/09/95

Calibration Time: 0916

Level: LOW

Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	357593	178796	715186	320432	-10.39
32 Naphthalene-d8	1345059	672530	2690118	1189591	-11.56
48 Acenaphthene-d10	554554	277277	1109108	475765	-14.21
65 Phenanthrene-d10	652753	326376	1305506	552555	-15.35
76 Chrysene-d12	397498	198749	794996	391729	-1.45
83 Perylene-d12	265183	132592	530366	286465	8.03

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.83	4.33	5.33	4.83	-0.01
32 Naphthalene-d8	6.03	5.53	6.53	6.03	-0.01
48 Acenaphthene-d10	7.81	7.31	8.31	7.81	-0.01
65 Phenanthrene-d10	9.32	8.82	9.82	9.32	-0.01
76 Chrysene-d12	12.29	11.79	12.79	12.29	0.00
83 Perylene-d12	14.65	14.15	15.15	14.65	0.00

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

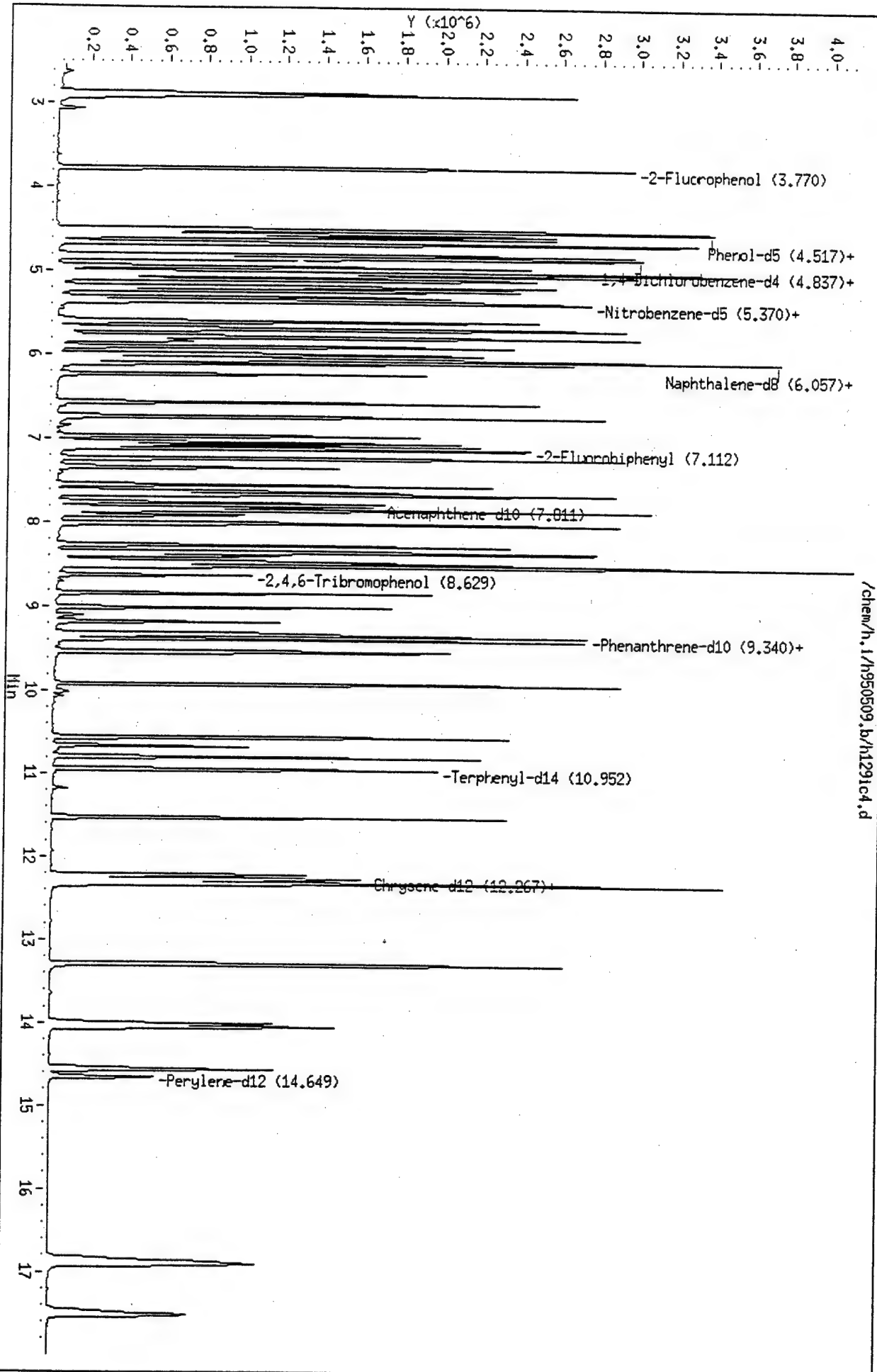
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/h.1/h950509.b/h1291c4.d  
Date : 09-11-95 10:40

Client ID:  
Sample Info: STD-8270W/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950509.b/h129ic3.d

Lab Smp Id:

Inj Date : 09-MAY-1995 10:14

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950509 STD120

Comment :

Method : /chem/h.i/h950509.b/hclpw.m

Meth Date : 09-May-1995 11:38 liping

Quant Type: ISTD

Cal Date : 09-MAY-1995 09:16

Cal File: h129ic1.d

Als bottle: 4

Calibration Sample, Level: 4

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
2 Pyridine	79.00	2.897	2.897	(0.600)	2535101	120	120
5 Phenol	94.00	4.532	4.532	(0.939)	1998916	120	110
6 Aniline	93.00	4.568	4.568	(0.946)	3098401	120	120
7 bis(2-Chloroethyl)ether	93.00	4.604	4.604	(0.953)	2001810	120	110 (QM)
9 2-Chlorophenol	128.00	4.675	4.675	(0.968)	1338645	120	110
10 1,3-Dichlorobenzene	146.00	4.805	4.805	(0.995)	1443643	120	110
12 1,4-Dichlorobenzene	146.00	4.852	4.852	(1.005)	1303094	120	110
13 Benzyl alcohol	108.00	4.959	4.959	(1.027)	1081718	120	120
15 1,2-Dichlorobenzene	146.00	5.018	5.018	(1.039)	1081011	120	100
16 2-Methylphenol	108.00	5.054	5.054	(1.047)	1317852	120	110
18 bis(2-chloroisopropyl)ether	45.00	5.089	5.089	(1.054)	2976452	120	110
19 4-Methylphenol	108.00	5.196	5.196	(1.076)	1557638	120	120
21 N-Nitroso-di-n-propylamine	70.00	5.243	5.243	(1.086)	1147303	120	110
22 Hexachloroethane	117.00	5.303	5.303	(1.098)	588476	120	110
24 Nitrobenzene	77.00	5.374	5.374	(0.890)	1405037	120	110
25 Isophorone	82.00	5.611	5.611	(0.929)	3305996	120	110
26 2-Nitrophenol	139.00	5.682	5.682	(0.941)	725313	120	120
27 2,4-Dimethylphenol	107.00	5.706	5.706	(0.945)	1268535	120	110
28 Benzoic acid	122.00	5.860	5.860	(0.971)	711848	120	110 (M)
29 bis(2-Chloroethoxy)methane	93.00	5.789	5.789	(0.959)	1742670	120	110
30 2,4-Dichlorophenol	162.00	5.907	5.907	(0.978)	945137	120	110
31 1,2,4-Trichlorobenzene	180.00	6.002	6.002	(0.994)	929621	120	110
33 N-phthalene	128.00	6.061	6.061	(1.004)	3093873	120	100
34 4-Chloroaniline	127.00	6.109	6.109	(1.012)	1472464	120	110
35 Hexachlorobutadiene	225.00	6.239	6.239	(1.033)	454014	120	110
36 4-Chloro-3-methylphenol	107.00	6.571	6.571	(1.088)	1002411	120	110
37 2-Methylnaphthalene	142.00	6.748	6.748	(1.118)	1866028	120	100
38 Hexachlorocyclopentadiene	237.00	6.974	6.974	(0.892)	519025	120	120
39 2,4,6-Trichlorophenol	196.00	7.045	7.045	(0.901)	625108	120	130

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
=====	=====	==	=====	=====	=====	=====	=====
40 2,4,5-Trichlorophenol	196.00	7.080	7.080	(0.906)	543135	120	110
42 2-Chloronaphthalene	162.00	7.234	7.234	(0.926)	1516794	120	110
43 2-Nitroaniline	65.00	7.353	7.353	(0.941)	664067	120	120
44 Dimethylphthalate	163.00	7.554	7.554	(0.967)	1833440	120	110
45 2,6-Dinitrotoluene	165.00	7.637	7.637	(0.977)	445844	120	120
46 Acenaphthylene	152.00	7.661	7.661	(0.980)	2483993	120	110
47 3-Nitroaniline	138.00	7.768	7.768	(0.994)	562563	120	120
49 Acenaphthene	153.00	7.851	7.851	(1.005)	1409509	120	100
50 2,4-Dinitrophenol	184.00	7.874	7.874	(1.008)	212317	120	140 (Q)
51 4-Nitrophenol	109.00	7.922	7.922	(1.014)	181466	120	120
52 Dibenzofuran	168.00	8.016	8.016	(1.026)	1915293	120	100
53 2,4-Dinitrotoluene	165.00	8.028	8.028	(1.027)	486760	120	120
54 Diethylphthalate	149.00	8.277	8.277	(1.059)	1783479	120	110
55 4-Chlorophenyl-phenylether	204.00	8.348	8.348	(1.068)	595266	120	100
56 Fluorene	166.00	8.360	8.360	(1.070)	1289862	120	100
57 4-Nitroaniline	138.00	8.408	8.408	(1.076)	519407	120	120
58 4,6-Dinitro-2-methylphenol	198.00	8.467	8.467	(0.908)	271708	120	140
59 n-Nitrosodiphenylamine	169.00	8.479	8.479	(0.910)	954445	120	110
60 1,2-Diphenylhydrazine	77.00	8.514	8.514	(0.914)	3440364	120	100
62 4-Bromophenyl-phenylether	248.00	8.846	8.846	(0.949)	378945	120	110
63 Hexachlorobenzene	283.70	9.012	9.012	(0.967)	428932	120	120
64 Pentachlorophenol	265.50	9.178	9.178	(0.985)	274351	120	120
66 Phenanthrene	178.00	9.344	9.344	(1.003)	1760275	120	110
67 Anthracene	178.00	9.391	9.391	(1.008)	1723112	120	110
68 Carbazole	167.00	9.545	9.545	(1.024)	1771608	120	110
69 Di-n-butylphthalate	149.00	9.924	9.924	(1.065)	2565053	120	110
70 Fluoranthene	202.00	10.564	10.564	(1.133)	1604359	120	120
71 Pyrene	202.00	10.801	10.801	(0.879)	1662242	120	110
73 Butylbenzylphthalate	149.00	11.536	11.536	(0.938)	1130110	120	110
74 3,3'-Dichlorobenzidine	252.00	12.235	12.235	(0.995)	582437	120	120
75 Benzo[a]anthracene	228.00	12.271	12.271	(0.998)	1450477	120	120
77 Chrysene	228.00	12.342	12.342	(1.004)	1138398	120	110
78 bis(2-Ethylhexyl)phthalate	149.00	12.330	12.330	(1.003)	1274729	120	100
79 Di-n-octylphthalate	149.00	13.302	13.302	(0.907)	2850610	120	110
80 Benzo[b]fluoranthene	252.00	14.025	14.025	(0.956)	1676163	120	140
81 Benzo[k]fluoranthene	252.00	14.072	14.072	(0.960)	1291677	120	97
82 Benzo[a]pyrene	252.00	14.570	14.570	(0.994)	1237260	120	120
84 Indeno[1,2,3-cd]pyrene	276.00	16.892	16.892	(1.152)	1479794	120	120
85 Dibenz[a,h]anthracene	278.00	16.928	16.928	(1.154)	1226765	120	120
86 Benzo[g,h,i]perylene	276.00	17.544	17.544	(1.196)	1229222	120	120
\$ 3 2-Fluorophenol	112.00	3.774	3.774	(0.782)	1573910	120	120
\$ 4 Phenol-d5	99.00	4.509	4.509	(0.934)	1886233	120	110
\$ 61 2,4,6-Tribromophenol	329.70	8.633	8.633	(0.926)	232479	120	120
\$ 23 Nitrobenzene-d5	82.00	5.362	5.362	(0.888)	1490971	120	110
\$ 41 2-Fluorobiphenyl	172.00	7.128	7.128	(0.912)	1670024	120	110
\$ 72 Terphenyl-d14	244.00	10.955	10.955	(0.891)	1057493	120	100
* 11 1,4-Dichlorobenzene-d4	152.00	4.829	4.829	(1.000)	341014	40	
* 32 Naphthalene-d8	136.00	6.037	6.037	(1.000)	1279576	40	
* 48 Acenaphthene-d10	164.00	7.815	7.815	(1.000)	507097	40	

Compounds	QUANT SIG						AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE		CAL-AMT	ON-COL
							( ng)	( ng)
65 Phenanthrene-d10	188.00	9.320	9.320	(1.000)	558235		40	
76 Chrysene-d12	240.00	12.294	12.294	(1.000)	414568		40	
83 Perylene-d12	264.00	14.664	14.664	(1.000)	306861		40	
17 ortho-Cresol	108.00	5.054	5.054	(1.047)	1317852		120	110
20 meta,para-Cresol	108.00	5.196	5.196	(1.076)	1557638		120	120
96 Benzidine	184.00	10.007	10.007	(0.814)	31315		120	110

# QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h129ic3.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950509.b/hclpw.m  
Misc Info: 950509 STD120

Calibration Date: 05/09/95  
Calibration Time: 0916

Level: LOW  
Sample Type: WATER

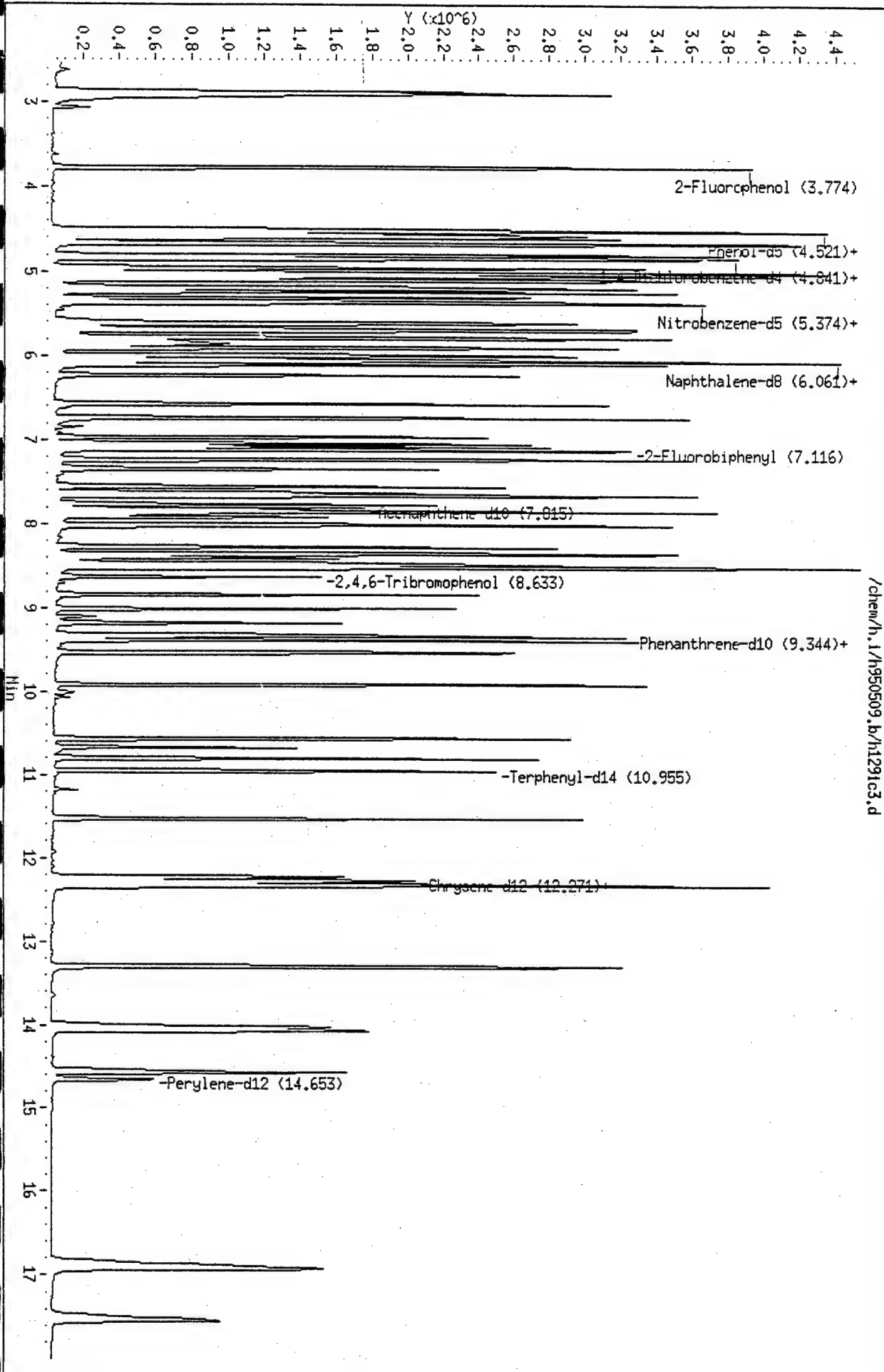
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	357593	178796	715186	341014	-4.64
32 Naphthalene-d8	1345059	672530	2690118	1279576	-4.87
48 Acenaphthene-d10	554554	277277	1109108	507097	-8.56
65 Phenanthrene-d10	652753	326376	1305506	558235	-14.48
76 Chrysene-d12	397498	198749	794996	414568	4.29
83 Perylene-d12	265183	132592	530366	306861	15.72

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.83	4.33	5.33	4.83	0.07
32 Naphthalene-d8	6.03	5.53	6.53	6.04	0.05
48 Acenaphthene-d10	7.81	7.31	8.31	7.82	0.04
65 Phenanthrene-d10	9.32	8.82	9.82	9.32	0.03
76 Chrysene-d12	12.29	11.79	12.79	12.29	0.03
83 Perylene-d12	14.65	14.15	15.15	14.66	0.10

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950509.b/h1291c3.d  
Date : 09-MAY-95 10:14  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950509.b/h129ic2.d

Lab Smp Id:

Inj Date : 09-MAY-1995 09:49

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950509 STD160

Comment :

Method : /chem/h.i/h950509.b/hclpw.m

Meth Date : 09-May-1995 11:38 liping

Quant Type: ISTD

Cal Date : 09-MAY-1995 09:16

Cal File: h129ic1.d

Als bottle: 3

Calibration Sample, Level: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
2 Pyridine	79.00	2.893	2.893	(0.598)	3113270	160	160
5 Phenol	94.00	4.540	4.540	(0.939)	2307416	160	140
6 Aniline	93.00	4.576	4.576	(0.946)	4031608	160	170
7 bis(2-Chloroethyl)ether	93.00	4.611	4.611	(0.953)	2810001	160	160 (QM)
9 2-Chlorophenol	128.00	4.682	4.682	(0.968)	1552741	160	130
10 1,3-Dichlorobenzene	146.00	4.801	4.801	(0.993)	1637014	160	140
12 1,4-Dichlorobenzene	146.00	4.848	4.848	(1.002)	1503100	160	130
13 Benzyl alcohol	108.00	4.967	4.967	(1.027)	1336933	160	150
15 1,2-Dichlorobenzene	146.00	5.026	5.026	(1.039)	1186915	160	120
16 2-Methylphenol	108.00	5.062	5.062	(1.047)	1558068	160	140
18 bis(2-chloroisopropyl)ether	45.00	5.097	5.097	(1.054)	3587666	160	140
19 4-Methylphenol	108.00	5.204	5.204	(1.076)	1994351	160	160
21 N-Nitroso-di-n-propylamine	70.00	5.251	5.251	(1.086)	1364951	160	140
22 Hexachloroethane	117.00	5.310	5.310	(1.098)	673461	160	130
24 Nitrobenzene	77.00	5.382	5.382	(0.890)	1640575	160	140
25 Isophorone	82.00	5.619	5.619	(0.929)	4050003	160	150
26 2-Nitrophenol	139.00	5.678	5.678	(0.939)	923145	160	160
27 2,4-Dimethylphenol	107.00	5.713	5.713	(0.945)	1598687	160	140
28 Benzoic acid	122.00	5.891	5.891	(0.975)	1184939	160	200 (M)
29 bis(2-Chloroethoxy)methane	93.00	5.796	5.796	(0.959)	2040305	160	140
30 2,4-Dichlorophenol	162.00	5.915	5.915	(0.978)	1140632	160	150
31 1,2,4-Trichlorobenzene	180.00	5.998	5.998	(0.992)	1119141	160	140
33 Naphthalene	128.00	6.069	6.069	(1.004)	3516873	160	130
34 4-Chloroaniline	127.00	6.116	6.116	(1.012)	1821073	160	140
35 Hexachlorobutadiene	225.00	6.235	6.235	(1.031)	544175	160	140
36 4-Chloro-3-methylphenol	107.00	6.578	6.578	(1.088)	1201032	160	140
37 2-Methylnaphthalene	142.00	6.744	6.744	(1.116)	2236336	160	130
38 Hexachlorocyclopentadiene	237.00	6.970	6.970	(0.891)	648660	160	150
39 2,4,6-Trichlorophenol	196.00	7.052	7.052	(0.902)	677522	160	140

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
40 2,4,5-Trichlorophenol	196.00	7.088	7.088	(0.906)	704008	160	150
42 2-Chloronaphthalene	162.00	7.242	7.242	(0.926)	1805133	160	130
43 2-Nitroaniline	65.00	7.349	7.349	(0.939)	831444	160	150
44 Dimethylphthalate	163.00	7.562	7.562	(0.967)	2205044	160	140
45 2,6-Dinitrotoluene	165.00	7.633	7.633	(0.976)	547087	160	150
46 Acenaphthylene	152.00	7.669	7.669	(0.980)	2771478	160	120
47 3-Nitroaniline	138.00	7.775	7.775	(0.994)	675330	160	150
49 Acenaphthene	153.00	7.858	7.858	(1.005)	1595634	160	120
50 2,4-Dinitrophenol	184.00	7.882	7.882	(1.008)	268122	160	180(Q)
51 4-Nitrophenol	109.00	7.929	7.929	(1.014)	224237	160	160
52 Dibenzofuran	168.00	8.012	8.012	(1.024)	2227749	160	130
53 2,4-Dinitrotoluene	165.00	8.036	8.036	(1.027)	560924	160	140
54 Diethylphthalate	149.00	8.285	8.285	(1.059)	2060214	160	130
55 4-Chlorophenyl-phenylether	204.00	8.356	8.356	(1.068)	709076	160	120
56 Fluorene	166.00	8.368	8.368	(1.070)	1507722	160	120
57 4-Nitroaniline	138.00	8.415	8.415	(1.076)	636286	160	150
58 4,6-Dinitro-2-methylphenol	198.00	8.475	8.475	(0.910)	312227	160	180
59 n-Nitrosodiphenylamine	169.00	8.486	8.486	(0.911)	1126971	160	150
60 1,2-Diphenylhydrazine	77.00	8.522	8.522	(0.915)	3825791	160	130
62 4-Bromophenyl-phenylether	248.00	8.854	8.854	(0.950)	461572	160	160
63 Hexachlorobenzene	283.70	9.020	9.020	(0.968)	505367	160	150
64 Pentachlorophenol	265.50	9.186	9.186	(0.986)	330061	160	170
66 Phenanthrene	178.00	9.351	9.351	(1.004)	2052174	160	140
67 Anthracene	178.00	9.399	9.399	(1.009)	1955748	160	140
68 Carbazole	167.00	9.541	9.541	(1.024)	2012010	160	140
69 Di-n-butylphthalate	149.00	9.920	9.920	(1.065)	2951389	160	140
70 Fluoranthene	202.00	10.572	10.572	(1.135)	1768832	160	140
71 Pyrene	202.00	10.809	10.809	(0.879)	1803929	160	140
73 Butylbenzylphthalate	149.00	11.532	11.532	(0.937)	1285073	160	150
74 3,3'-Dichlorobenzidine	252.00	12.231	12.231	(0.994)	633618	160	160
75 Benzo[a]anthracene	228.00	12.278	12.278	(0.998)	1568325	160	150
77 Chrysene	228.00	12.350	12.350	(1.004)	1215647	160	140
78 bis(2-Ethylhexyl)phthalate	149.00	12.338	12.338	(1.003)	1427247	160	140
79 Di-n-octylphthalate	149.00	13.309	13.309	(0.908)	3137153	160	160
80 Benzo[b]fluoranthene	252.00	14.032	14.032	(0.957)	1413672	160	150(M)
81 Benzo[k]fluoranthene	252.00	14.080	14.080	(0.960)	1701265	160	170(M)
82 Benzo[a]pyrene	252.00	14.577	14.577	(0.994)	1258774	160	160
84 Indeno[1,2,3-cd]pyrene	276.00	16.900	16.900	(1.153)	1444419	160	150
85 Dibenz[a,h]anthracene	278.00	16.936	16.936	(1.155)	1200085	160	150
86 Benzo[g,h,i]perylene	276.00	17.552	17.552	(1.197)	1191341	160	160
\$ 3 2-Fluorophenol	112.00	3.770	3.770	(0.779)	1823209	160	140
\$ 4 Phenol-d5	99.00	4.516	4.516	(0.934)	2230188	160	140
\$ 61 2,4,6-Tribromophenol	329.70	8.640	8.640	(0.927)	290059	160	170
\$ 23 Nitrobenzene-d5	82.00	5.358	5.358	(0.886)	1842289	160	140
\$ 41 2-Fluorobiphenyl	172.00	7.124	7.124	(0.911)	1983439	160	130
\$ 72 Terphenyl-d14	244.00	10.963	10.963	(0.891)	1219729	160	150
* 11 1,4-Dichlorobenzene-d4	152.00	4.836	4.836	(1.000)	322593	40	
* 32 Naphthalene-d8	136.00	6.045	6.045	(1.000)	1209230	40	
* 48 Acenaphthene-d10	164.00	7.823	7.823	(1.000)	485448	40	



Compounds	QUANT. SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT	ON-COL
						( ng)	( ng)
=====	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	9.316	9.316	(1.000)	496531	40	
* 76 Chrysene-d12	240.00	12.302	12.302	(1.000)	339225	40	
* 83 Perylene-d12	264.00	14.660	14.660	(1.000)	230310	40	
17 ortho-Cresol	108.00	5.062	5.062	(1.047)	1558068	160	140
20 meta,para-Cresol	108.00	5.204	5.204	(1.076)	1994351	160	160
96 Benzidine	184.00	10.015	10.015	(0.814)	34769	160	150

### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h129ic2.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950509.b/hclpw.m  
Misc Info: 950509 STD160

Calibration Date: 05/09/95  
Calibration Time: 0916  
Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	357593	178796	715186	322593	-9.79
32 Naphthalene-d8	1345059	672530	2690118	1209230	-10.10
48 Acenaphthene-d10	554554	277277	1109108	485448	-12.46
65 Phenanthrene-d10	652753	326376	1305506	496531	-23.93
76 Chrysene-d12	397498	198749	794996	339225	-14.66
83 Perylene-d12	265183	132592	530366	230310	-13.15

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.83	4.33	5.33	4.84	0.23
32 Naphthalene-d8	6.03	5.53	6.53	6.05	0.18
48 Acenaphthene-d10	7.81	7.31	8.31	7.82	0.14
65 Phenanthrene-d10	9.32	8.82	9.82	9.32	-0.01
76 Chrysene-d12	12.29	11.79	12.79	12.30	0.09
83 Perylene-d12	14.65	14.15	15.15	14.66	0.07

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950509.b/h1291c2.d

Date : 09-MAY-95 09:49

Client ID:

Sample Info: STD-8270M/1X

Volume Injected (ul): 2.0

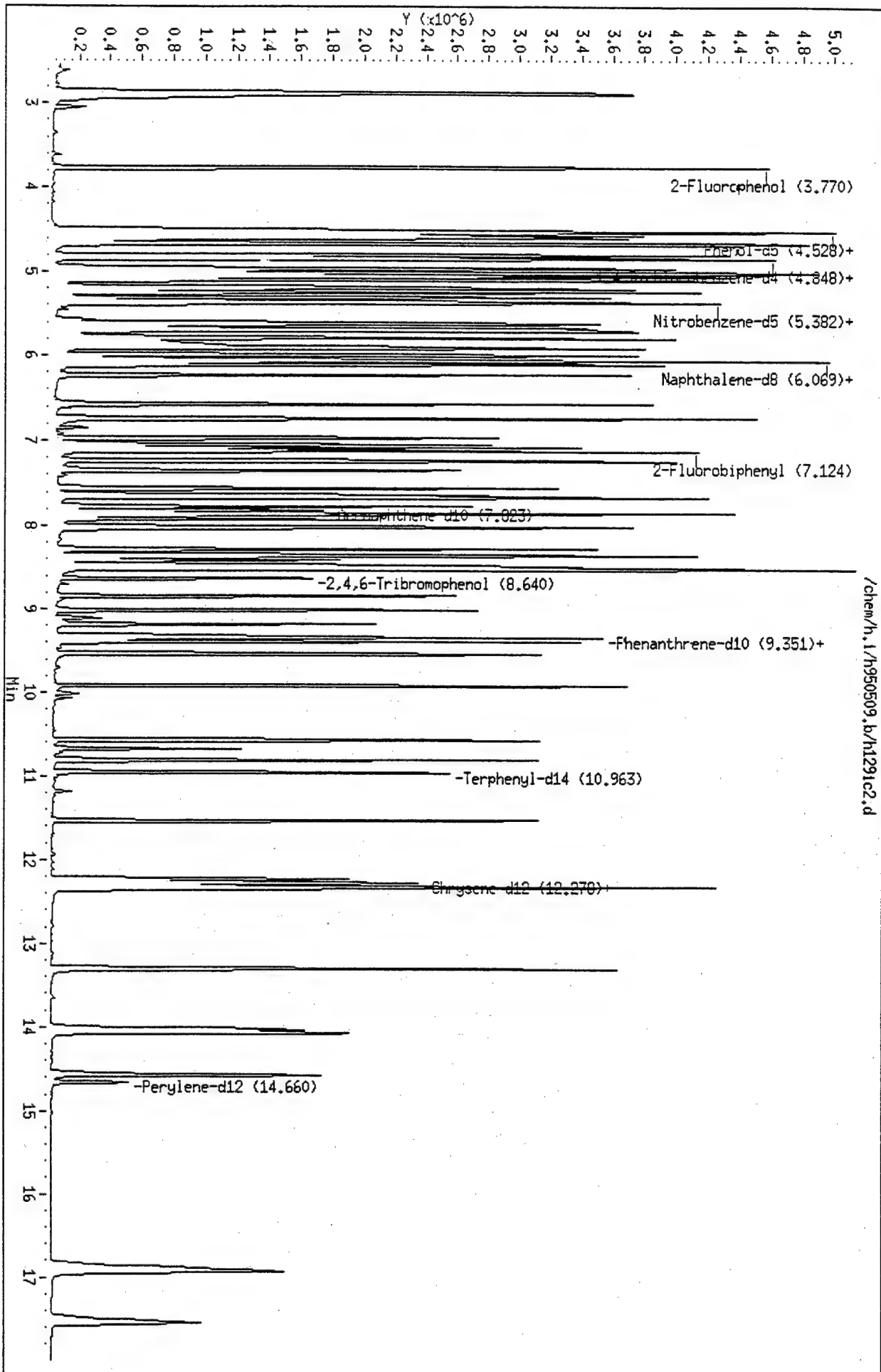
Column phase:

Instrument: h.1

Operator: LH

Column diameter: 0.25

Page 5



## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 16-MAY-1995 11:52  
 End Cal Date : 16-MAY-1995 13:52  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950516.b/hclpw.m  
 Cal Date : 16-May-1995 15:06 liping  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/h.i/h950516.b/h136ic5.d  
 Level 2: /chem/h.i/h950516.b/h136ic1.d  
 Level 3: /chem/h.i/h950516.b/h136ic4.d  
 Level 4: /chem/h.i/h950516.b/h136ic3.d  
 Level 5: /chem/h.i/h950516.b/h136ic2.d

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
2 Pyridine	0.93085	1.13643	0.91995	0.91370	0.95641	0.97147	9.640
5 Phenol	1.53843	1.59148	1.34245	1.13600	1.09025	1.33972	16.964
6 Aniline	1.23826	1.29266	1.24247	1.22638	1.06134	1.21222	7.266
7 bis(2-Chloroethyl)ether	1.37570	1.42358	1.23271	1.08935	1.08904	1.24208	12.578
9 2-Chlorophenol	1.32738	1.35636	1.26991	1.13220	1.11061	1.23929	9.060
10 1,3-Dichlorobenzene	1.59187	1.56769	1.45432	1.28242	1.27962	1.43518	10.452
12 1,4-Dichlorobenzene	1.59811	1.50446	1.42332	1.24664	1.29165	1.41284	10.326
13 Benzyl alcohol	0.19961	0.23473	0.23987	0.21461	0.19584	0.21693	9.199
15 1,2-Dichlorobenzene	1.47536	1.40280	1.25252	1.09731	1.07837	1.26127	14.087
16 2-Methylphenol	1.27262	1.34079	1.24523	1.23090	1.09154	1.23622	7.381
17 ortho-Cresol	1.27262	1.34079	1.24523	1.23090	1.09154	1.23622	7.381
18 bis(2-chloroisopropyl)ether	0.83661	0.84555	0.74673	0.67024	0.63736	0.74730	12.634
19 4-Methylphenol	1.26053	1.30180	1.14902	0.98135	0.91026	1.12059	15.253
20 meta,para-Cresol	1.26053	1.30180	1.14902	0.98135	0.91026	1.12059	15.253
21 N-Nitroso-di-n-propylamine	0.68927	0.62395	0.60583	0.54622	0.50082	0.59322	12.236
22 Hexachloroethane	0.57602	0.54593	0.53691	0.49558	0.49311	0.52951	6.653
24 Nitrobenzene	0.31606	0.31105	0.29906	0.27412	0.27725	0.29551	6.481
25 Isophorone	0.59718	0.58785	0.54895	0.53379	0.51024	0.55560	6.580
26 2-Nitrophenol	0.21514	0.21865	0.21321	0.19960	0.19772	0.20886	4.569
27 2,4-Dimethylphenol	0.37998	0.36719	0.38461	0.35979	0.36318	0.37095	2.914
28 Benzoic acid	0.16594	0.16428	0.18636	0.20212	0.19758	0.18326	9.572
29 bis(2-Chloroethoxy)methane	0.33468	0.32954	0.29378	0.26651	0.25444	0.29579	12.215
30 2,4-Dichlorophenol	0.31747	0.29926	0.29605	0.27144	0.26632	0.29011	7.276
31 1,2,4-Trichlorobenzene	0.35006	0.33579	0.31664	0.28782	0.28929	0.31592	8.755
33 Naphthalene	1.06068	1.00233	0.89613	0.80192	0.79364	0.91094	13.063
34 4-Chloroaniline	0.35817	0.33131	0.35020	0.32001	0.31213	0.33436	5.844

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 16-MAY-1995 11:52  
 End Cal Date : 16-MAY-1995 13:52  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950516.b/hclpw.m  
 Cal Date : 16-May-1995 15:06 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
35 Hexachlorobutadiene	0.21398	0.19573	0.20536	0.19152	0.19523	0.20036	4.577
36 4-Chloro-3-methylphenol	0.29595	0.29088	0.31411	0.29798	0.28845	0.29748	3.380
37 2-Methylnaphthalene	0.71300	0.64446	0.62305	0.55148	0.54250	0.61490	11.450
38 Hexachlorocyclopentadiene	0.37919	0.39660	0.43470	0.42490	0.41843	0.41076	5.483
39 2,4,6-Trichlorophenol	0.38408	0.38338	0.36360	0.35323	0.33013	0.36288	6.217
40 2,4,5-Trichlorophenol	0.42915	0.47626	0.49058	0.45000	0.45103	0.45940	5.253
42 2-Chloronaphthalene	1.24587	1.19399	1.09819	1.01038	0.98522	1.10673	10.212
43 2-Nitroaniline	0.27572	0.28129	0.29019	0.27612	0.26502	0.27767	3.302
44 Dimethylphthalate	1.52943	1.43407	1.33343	1.20273	1.15637	1.33121	11.695
45 2,6-Dinitrotoluene	0.34440	0.33611	0.34434	0.29981	0.28983	0.32290	8.081
46 Acenaphthylene	2.00977	1.90998	1.76946	1.56597	1.51402	1.75384	12.193
47 3-Nitroaniline	0.30305	0.31102	0.32858	0.29389	0.28390	0.30409	5.601
49 Acenaphthene	1.20408	1.10783	1.03238	0.93600	0.89012	1.03408	12.298
50 2,4-Dinitrophenol	0.08347	0.14121	0.18883	0.18438	0.17488	0.15455	28.404
51 4-Nitrophenol	0.11681	0.14065	0.18665	0.17400	0.16216	0.15605	17.761
52 Dibenzofuran	1.73808	1.64776	1.50165	1.31579	1.27640	1.49594	13.468
53 2,4-Dinitrotoluene	0.42188	0.42595	0.42345	0.37219	0.35678	0.40005	8.237
54 Diethylphthalate	1.60277	1.41407	1.40290	1.20996	1.16152	1.35824	13.046
55 4-Chlorophenyl-phenylether	0.65696	0.58783	0.54472	0.46371	0.46280	0.54320	15.325
56 Fluorene	1.24090	1.09432	1.00295	0.85706	0.83676	1.00640	16.761
57 4-Nitroaniline	0.27489	0.28723	0.30775	0.26888	0.24903	0.27756	7.854
58 4,6-Dinitro-2-methylphenol	0.12365	0.16323	0.18611	0.18070	0.17537	0.16581	15.106
59 n-Nitrosodiphenylamine	0.60285	0.59232	0.55700	0.52471	0.51684	0.55874	6.925
60 1,2-Diphenylhydrazine	1.60393	1.43768	1.33184	1.30555	1.37953	1.41170	8.404
62 4-Bromophenyl-phenylether	0.30495	0.28562	0.27457	0.25874	0.25716	0.27621	7.209
63 Hexachlorobenzene	0.37036	0.35104	0.33159	0.31889	0.32230	0.33884	6.376
64 Pentachlorophenol	0.13935	0.18792	0.20474	0.20590	0.20356	0.18830	15.044
66 Phenanthrene	1.27668	1.17458	1.11186	0.98722	0.99280	1.10863	11.117
67 Anthracene	1.21519	1.20088	1.06904	0.98974	0.98672	1.09231	10.143
68 Carbazole	1.01709	0.97877	0.93805	0.85389	0.82960	0.92348	8.678
69 Di-n-butylphthalate	1.72436	1.51736	1.37624	1.27961	1.25811	1.43113	13.501
70 Fluoranthene	1.09653	0.99165	0.98804	0.89018	0.87376	0.96803	9.300
71 Pyrene	1.58611	1.58875	1.54509	1.38185	1.33160	1.48668	8.152
73 Butylbenzylphthalate	0.78611	0.80246	0.78933	0.74112	0.76341	0.77649	3.125

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 16-MAY-1995 11:52  
 End Cal Date : 16-MAY-1995 13:52  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950516.b/hclpw.m  
 Cal Date : 16-May-1995 15:06 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
-----							
74 3,3'-Dichlorobenzidine	0.40237	0.42551	0.42614	0.43275	0.44333	0.42602	3.530
75 Benzo[a]anthracene	1.20649	1.20060	1.19582	1.09984	1.09824	1.16020	4.823
77 Chrysene	1.11479	1.09687	1.05851	1.00840	1.01174	1.05806	4.566
78 bis(2-Ethylhexyl)phthalate	1.00490	1.02970	0.93553	0.89374	0.93701	0.96017	5.797
79 Di-n-octylphthalate	2.25909	2.50708	2.41641	2.45528	2.29662	2.38690	4.418
80 Benzo[b]fluoranthene	1.58278	1.59993	1.79840	1.59058	1.69843	1.65402	5.643
81 Benzo[k]fluoranthene	1.88456	2.04899	1.68314	1.59707	1.44851	1.73245	13.681
82 Benzo[a]pyrene	1.33619	1.38455	1.38442	1.32997	1.32330	1.35169	2.241
84 Indeno[1,2,3-cd]pyrene	1.24911	1.30200	1.30952	1.37565	1.42483	1.33222	5.146
85 Dibenz[a,h]anthracene	1.01868	1.04135	1.05638	1.13636	1.15045	1.08065	5.465
86 Benzo[g,h,i]perylene	1.02385	1.02821	1.06118	1.11289	1.12912	1.07105	4.498
96 Benzidine	0.01623	0.01164	0.01311	0.01324	0.01420	0.01369	12.373
-----							
\$ 3 2-Fluorophenol	1.24714	1.35552	1.24210	1.15771	1.14358	1.22921	6.913
\$ 4 Phenol-d5	1.39429	1.45505	1.26936	1.12905	1.07570	1.26469	12.943
\$ 23 Nitrobenzene-d5	0.33050	0.32715	0.31698	0.30321	0.30369	0.31631	4.031
\$ 41 2-Fluorobiphenyl	1.42162	1.31597	1.16657	1.05235	1.01483	1.19427	14.479
\$ 61 2,4,6-Tribromophenol	0.15937	0.16154	0.15931	0.15670	0.18113	0.16361	6.077
\$ 72 Terphenyl-d14	1.15424	1.11113	1.08546	0.98061	0.98490	1.06326	7.290

SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic5.d

Lab Smp Id:

Inj Date : 16-MAY-1995 13:52

Operator : LH

Smp Info : STD-8270W/1X

Misc Info : 950516 STD020

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Cal Date : 16-MAY-1995 11:52

Als bottle: 6

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Inst ID: h.i

Quant Type: ISTD

Cal File: h136ic1.d

Compound Sublist: std.sub

Compounds	QUANT	SIG						CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
								( ng)	( ug/L)
2 Pyridine	79.00		2.550	2.546	(0.574)		40258	16	8
5 Phenol	94.00		4.162	4.170	(0.936)		66535	19	10
6 Aniline	93.00		4.185	4.193	(0.941)		53553	19	10
7 bis(2-Chloroethyl)ether	93.00		4.221	4.217	(0.949)		59497	19	10
9 2-Chlorophenol	128.00		4.292	4.300	(0.965)		57407	20	10
10 1,3-Dichlorobenzene	146.00		4.422	4.418	(0.995)		68846	20	10
12 1,4-Dichlorobenzene	146.00		4.458	4.466	(1.003)		69116	21	11
13 Benzyl alcohol	108.00		4.742	4.679	(1.067)		8633	17	8 (QM)
15 1,2-Dichlorobenzene	146.00		4.636	4.632	(1.043)		63807	21	10
16 2-Methylphenol	108.00		4.695	4.703	(1.056)		55039	19	9
18 bis(2-chloroisopropyl)ether	45.00		4.707	4.715	(1.059)		36182	20	10 (Q)
19 4-Methylphenol	108.00		4.825	4.833	(1.085)		54516	19	10
21 N-Nitroso-di-n-propylamine	70.00		4.837	4.845	(1.088)		29810	22	11
22 Hexachloroethane	117.00		4.920	4.916	(1.107)		24912	21	10
24 Nitrobenzene	77.00		4.979	4.987	(0.882)		46822	20	10
25 Isophorone	82.00		5.204	5.201	(0.922)		88468	20	10
26 2-Nitrophenol	139.00		5.287	5.295	(0.937)		31872	20	10 (a)
27 2,4-Dimethylphenol	107.00		5.335	5.331	(0.945)		56291	21	10
28 Benzoic acid	122.00		5.406	5.449	(0.958)		24583	20	10 (aQM)
29 bis(2-Chloroethoxy)methane	93.00		5.406	5.414	(0.958)		49580	20	10
30 2,4-Dichlorophenol	162.00		5.536	5.532	(0.981)		47031	21	11
31 1,2,4-Trichlorobenzene	180.00		5.607	5.603	(0.994)		51859	21	10
33 Naphthalene	128.00		5.667	5.675	(1.004)		157132	21	10
34 4-Chloroaniline	127.00		5.726	5.734	(1.015)		53060	22	11
35 Hexachlorobutadiene	225.00		5.844	5.852	(1.036)		31699	22	11
36 4-Chloro-3-methylphenol	107.00		6.235	6.232	(1.105)		43843	20	10
37 2-Methylnaphthalene	142.00		6.342	6.350	(1.124)		105625	22	11
38 Hexachlorocyclopentadiene	237.00		6.579	6.587	(0.887)		29816	19	10
39 2,4,6-Trichlorophenol	196.00		6.662	6.658	(0.898)		30201	20	10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.709	6.717	(0.904)	33745	18	9(a)
42 2-Chloronaphthalene	152.00	6.840	6.836	(0.922)	97965	21	10
43 2-Nitroaniline	65.00	6.958	6.966	(0.938)	21680	20	10(a)
44 Dimethylphthalate	163.00	7.171	7.168	(0.966)	120261	21	11
45 2,6-Dinitrotoluene	165.00	7.231	7.239	(0.974)	27081	20	10
46 Acenaphthylene	152.00	7.266	7.263	(0.979)	158031	21	10
47 3-Nitroaniline	138.00	7.373	7.381	(0.994)	23829	19	10(a)
49 Acenaphthene	153.00	7.456	7.452	(1.005)	94679	22	11
50 2,4-Dinitrophenol	184.00	7.480	7.488	(1.008)	6563	12	6(aQ)
51 4-Nitrophenol	109.00	7.598	7.582	(1.024)	9185	17	8(a)
52 Dibenzofuran	168.00	7.610	7.618	(1.026)	136668	21	10
53 2,4-Dinitrotoluene	165.00	7.634	7.630	(1.029)	33173	20	10
54 Diethylphthalate	149.00	7.883	7.891	(1.062)	126028	23	11
55 4-Chlorophenyl-phenylether	204.00	7.954	7.962	(1.072)	51658	22	11
56 Fluorene	166.00	7.965	7.962	(1.073)	97574	23	11
57 4-Nitroaniline	138.00	8.001	8.009	(1.078)	21615	19	10(a)
58 4,6-Dinitro-2-methylphenol	198.00	8.048	8.056	(0.903)	13083	15	8(a)
59 n-Nitrosodiphenylamine	169.00	8.084	8.080	(0.907)	63785	20	10
60 1,2-Diphenylhydrazine	77.00	8.108	8.116	(0.910)	169706	22	11
62 4-Bromophenyl-phenylether	248.00	8.451	8.448	(0.948)	32266	21	11
63 Hexachlorobenzene	283.70	8.605	8.613	(0.965)	39187	21	10
64 Pentachlorophenol	265.50	8.795	8.791	(0.987)	14744	15	7(a)
66 Phenanthrene	178.00	8.937	8.945	(1.003)	135081	22	11
67 Anthracene	178.00	8.985	8.981	(1.008)	128575	20	10
68 Carbazole	167.00	9.139	9.147	(1.025)	107615	21	10
69 Di-n-butylphthalate	149.00	9.542	9.538	(1.070)	182448	23	11
70 Fluoranthene	202.00	10.158	10.166	(1.140)	116020	22	11
71 Pyrene	202.00	10.383	10.391	(0.882)	114502	20	10
73 Butylbenzylphthalate	149.00	11.094	11.090	(0.943)	56750	20	10
74 3,3'-Dichlorobenzidine	252.00	11.722	11.718	(0.996)	29047	19	9
75 Benzo[a]anthracene	228.00	11.746	11.754	(0.998)	87097	20	10
77 Chrysene	228.00	11.793	11.801	(1.002)	80477	20	10
78 bis(2-Ethylhexyl)phthalate	149.00	11.829	11.837	(1.005)	72544	20	10
79 Di-n-octylphthalate	149.00	12.717	12.725	(0.909)	99704	18	9
80 Benzo[b]fluoranthene	252.00	13.357	13.365	(0.955)	69855	20	10
81 Benzo[k]fluoranthene	252.00	13.393	13.401	(0.958)	83174	18	9
82 Benzo[a]pyrene	252.00	13.891	13.899	(0.993)	58972	19	10
84 Indeno[1,2,3-cd]pyrene	276.00	15.905	15.925	(1.137)	55129	19	10
85 Dibenzo[a,h]anthracene	278.00	15.941	15.949	(1.140)	44959	20	10
86 Benzo[g,h,i]perylene	276.00	16.450	16.458	(1.176)	45187	20	10
\$ 3 2-Fluorophenol	112.00	3.427	3.423	(0.771)	53937	18	9(R)
\$ 4 Phenol-d5	99.00	4.162	4.158	(0.936)	60301	19	10
\$ 61 2,4,6-Tribromophenol	329.70	8.226	8.234	(0.923)	16862	20	10
\$ 23 Nitrobenzene-d5	82.00	4.967	4.964	(0.880)	48961	20	10(R)
\$ 41 2-Fluorobiphenyl	172.00	6.733	6.729	(0.907)	111784	22	11(R)
\$ 72 Terphenyl-d14	244.00	10.537	10.545	(0.895)	83325	21	10(R)
* 11 1,4-Dichlorobenzene-d4	152.00	4.446	4.454	(1.000)	86497	40	
* 32 Naphthalene-d8	136.00	5.643	5.651	(1.000)	296285	40	
* 48 Acenaphthene-d10	164.00	7.420	7.417	(1.000)	157263	40	



Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
*****	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.913	8.922	1.000)	211613	40	
* 76 Chrysene-d12	240.00	11.769	11.777	(1.000)	144381	40	
* 83 Perylene-d12	264.00	13.985	13.993	(1.000)	88269	40	
17 ortho-Cresol	108.00	4.695	4.703	(1.056)	55039	19	9
20 meta,para-Cresol	108.00	4.825	4.833	(1.085)	54516	19	10
96 Benzidine	184.00	10.537	10.770	(0.895)	1172	28	14

#### QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic5.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD020

Calibration Date: 05/16/95  
Calibration Time: 1152

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	86497	-16.17
32 Naphthalene-d8	348029	174014	696058	296285	-14.87
48 Acenaphthene-d10	171424	85712	342848	157263	-8.26
65 Phenanthrene-d10	222794	111397	445588	211613	-5.02
76 Chrysene-d12	137788	68894	275576	144381	4.78
83 Perylene-d12	83290	41645	166580	88269	5.98

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.45	-0.18
32 Naphthalene-d8	5.65	5.15	6.15	5.64	-0.14
48 Acenaphthene-d10	7.42	6.92	7.92	7.42	0.05
65 Phenanthrene-d10	8.92	8.42	9.42	8.91	-0.09
76 Chrysene-d12	11.78	11.28	12.28	11.77	-0.07
83 Perylene-d12	13.99	13.49	14.49	13.99	-0.06

AREA UPPER LIMIT = +100% of internal standard area.

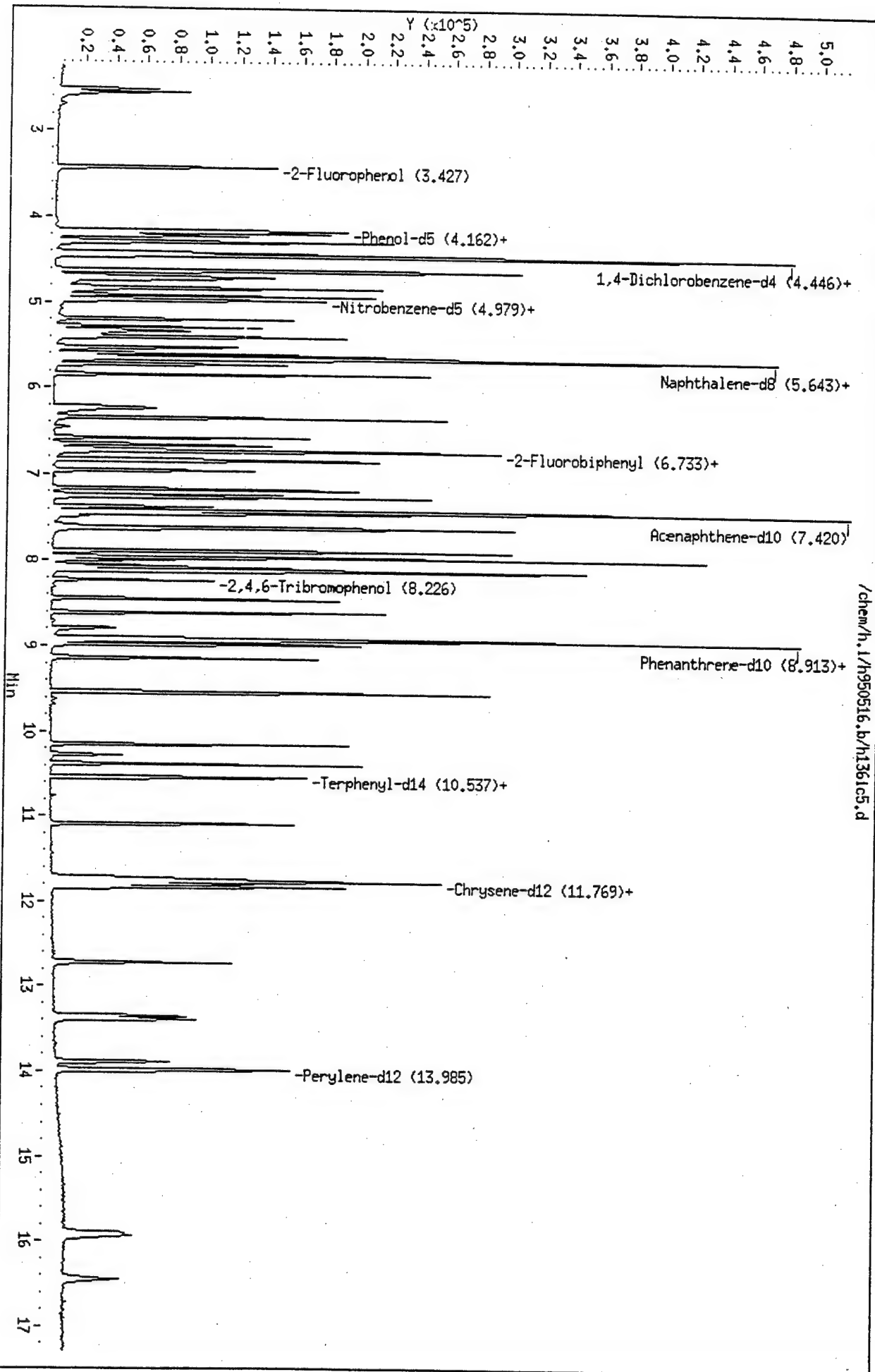
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c5.d  
Date : 16-MAY-95 13:52  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic1.d

Lab Smp Id:

Inj Date : 16-MAY-1995 11:52

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD050

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Method Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.546	2.546	(0.572)	146575	50	25
5 Phenol	94.00	4.170	4.170	(0.936)	205267	50	25
6 Aniline	93.00	4.193	4.193	(0.941)	166726	50	25
7 bis(2-Chloroethyl)ether	93.00	4.217	4.217	(0.947)	183611	50	25
9 2-Chlorophenol	128.00	4.300	4.300	(0.965)	174942	50	25
10 1,3-Dichlorobenzene	146.00	4.418	4.418	(0.992)	202199	50	25
12 1,4-Dichlorobenzene	146.00	4.466	4.466	(1.003)	194044	50	25
13 Benzyl alcohol	108.00	4.679	4.679	(1.051)	30275	50	25 (M)
15 1,2-Dichlorobenzene	146.00	4.632	4.632	(1.040)	180932	50	25
16 2-Methylphenol	108.00	4.703	4.703	(1.056)	172933	50	25
18 bis(2-chloroisopropyl)ether	45.00	4.715	4.715	(1.059)	109058	50	25
19 4-Methylphenol	108.00	4.833	4.833	(1.085)	167905	50	25
21 N-Nitroso-di-n-propylamine	70.00	4.845	4.845	(1.088)	80476	50	25
22 Hexachloroethane	117.00	4.916	4.916	(1.104)	70413	50	25
24 Nitrobenzene	77.00	4.987	4.987	(0.883)	135316	50	25
25 Isophorone	82.00	5.201	5.201	(0.920)	255738	50	25
26 2-Nitrophenol	139.00	5.295	5.295	(0.937)	95121	50	25
27 2,4-Dimethylphenol	107.00	5.331	5.331	(0.943)	159742	50	25
28 Benzoic acid	122.00	5.449	5.449	(0.964)	71466	50	25
29 bis(2-Chloroethoxy)methane	93.00	5.414	5.414	(0.958)	143361	50	25
30 2,4-Dichlorophenol	162.00	5.532	5.532	(0.979)	130189	50	25
31 1,2,4-Trichlorobenzene	180.00	5.603	5.603	(0.992)	146082	50	25
33 Naphthalene	128.00	5.675	5.675	(1.004)	436051	50	25
34 4-Chloroaniline	127.00	5.734	5.734	(1.015)	144131	50	25
35 Hexachlorobutadiene	225.00	5.852	5.852	(1.036)	85151	50	25
36 4-Chloro-3-methylphenol	107.00	6.232	6.232	(1.103)	126545	50	25
37 2-Methylnaphthalene	142.00	6.350	6.350	(1.124)	280364	50	25
38 Hexachlorocyclopentadiene	237.00	6.587	6.587	(0.888)	84983	50	25
39 2,4,6-Trichlorophenol	196.00	6.658	6.658	(0.898)	82150	50	25

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							ng	(ug/L)
40 2,4,5-Trichlorophenol		196.00	6.717	6.717	(0.906)	102052	50	25
42 2-Chloronaphthalene		152.00	6.836	6.836	(0.922)	255849	50	25
43 2-Nitroaniline		65.00	6.966	6.966	(0.939)	60275	50	25
44 Dimethylphthalate		163.00	7.168	7.168	(0.966)	307292	50	25
45 2,6-Dinitrotoluene		165.00	7.239	7.239	(0.976)	72022	50	25
46 Acenaphthylene		152.00	7.263	7.263	(0.979)	409270	50	25
47 3-Nitroaniline		138.00	7.381	7.381	(0.995)	66646	50	25
49 Acenaphthene		153.00	7.452	7.452	(1.005)	237386	50	25
50 2,4-Dinitrophenol		184.00	7.488	7.488	(1.010)	30259	50	25
51 4-Nitrophenol		109.00	7.582	7.582	(1.022)	30138	50	25
52 Dibenzofuran		168.00	7.618	7.618	(1.027)	353082	50	25
53 2,4-Dinitrotoluene		165.00	7.630	7.630	(1.029)	91273	50	25
54 Diethylphthalate		149.00	7.891	7.891	(1.064)	303006	50	25
55 4-Chlorophenyl-phenylether		204.00	7.962	7.962	(1.073)	125960	50	25
56 Fluorene		166.00	7.962	7.962	(1.073)	234490	50	25
57 4-Nitroaniline		138.00	8.009	8.009	(1.080)	61548	50	25
58 4,6-Dinitro-2-methylphenol		198.00	8.056	8.056	(0.903)	45458	50	25
59 n-Nitrosodiphenylamine		169.00	8.080	8.080	(0.906)	164956	50	25
60 1,2-Diphenylhydrazine		77.00	8.116	8.116	(0.910)	400382	50	25
62 4-Bromophenyl-phenylether		248.00	8.448	8.448	(0.947)	79542	50	25
63 Hexachlorobenzene		283.70	8.613	8.613	(0.965)	97763	50	25
64 Pentachlorophenol		265.50	8.791	8.791	(0.985)	52335	50	25
66 Phenanthrene		178.00	8.945	8.945	(1.003)	327111	50	25
67 Anthracene		178.00	8.981	8.981	(1.007)	334435	50	25
68 Carbazole		167.00	9.147	9.147	(1.025)	272581	50	25
69 Di-n-butylphthalate		149.00	9.538	9.538	(1.069)	422572	50	25
70 Fluoranthene		202.00	10.166	10.166	(1.139)	276166	50	25
71 Pyrene		202.00	10.391	10.391	(0.882)	273639	50	25
73 Butylbenzylphthalate		149.00	11.090	11.090	(0.942)	138212	50	25
74 3,3'-Dichlorobenzidine		252.00	11.718	11.718	(0.995)	73287	50	25
75 Benzo[a]anthracene		228.00	11.754	11.754	(0.998)	206785	50	25
77 Chrysene		228.00	11.801	11.801	(1.002)	188920	50	25
78 bis(2-Ethylhexyl)phthalate		149.00	11.837	11.837	(1.005)	177351	50	25
79 Di-n-octylphthalate		149.00	12.725	12.725	(0.909)	261018	50	25
80 Benzo[b]fluoranthene		252.00	13.365	13.365	(0.955)	166573	50	25
81 Benzo[k]fluoranthene		252.00	13.401	13.401	(0.958)	213325	50	25
82 Benzo[a]pyrene		252.00	13.899	13.899	(0.993)	144149	50	25
84 Indeno[1,2,3-cd]pyrene		276.00	15.925	15.925	(1.138)	135554	50	25
85 Dibenz[a,h]anthracene		278.00	15.949	15.949	(1.140)	108418	50	25
86 Benzo[g,h,i]perylene		276.00	16.458	16.458	(1.176)	107050	50	25
\$ 3 2-Fluorophenol		112.00	3.423	3.423	(0.769)	174833	50	25
\$ 4 Phenol-d5		99.00	4.158	4.158	(0.933)	187670	50	25
\$ 61 2,4,6-Tribromophenol		329.70	8.234	8.234	(0.923)	44987	50	25
\$ 23 Nitrobenzene-d5		82.00	4.964	4.964	(0.878)	142323	50	25
\$ 41 2-Fluorobiphenyl		172.00	6.729	6.729	(0.907)	281986	50	25
\$ 72 Terphenyl-d14		244.00	10.545	10.545	(0.895)	191375	50	25
* 11 1,4-Dichlorobenzene-d4		152.00	4.454	4.454	(1.000)	103183	40	
* 32 Naphthalene-d8		136.00	5.651	5.651	(1.000)	348029	40	
* 48 Acenaphthene-d10		164.00	7.417	7.417	(1.000)	171424	40	

Compounds	QUANT SIG MASS	RT	FXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						CN-COLUMN ( ng)	FINAL ( ug/L)
65 Phenanthrene-d10	188.00	8.922	8.922	(1.000)	222794	40	
76 Chrysene-d12	240.00	11.777	11.777	(1.000)	137788	40	
83 Perylene-d12	264.00	13.993	13.993	(1.000)	83290	40	
17 ortho-Cresol	108.00	4.703	4.703	(1.056)	172933	50	25
20 meta,para-Cresol	108.00	4.833	4.833	(1.085)	167905	50	25
96 Benzidine	184.00	10.770	10.770	(0.914)	2005	50	25

C Flag Legend

M - Compound response manually integrated.

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INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic1.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD050

Calibration Date: 05/16/95  
Calibration Time: 1152

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	103183	0.00
32 Naphthalene-d8	348029	174014	696058	348029	0.00
48 Acenaphthene-d10	171424	85712	342848	171424	0.00
65 Phenanthrene-d10	222794	111397	445588	222794	0.00
76 Chrysene-d12	137788	68894	275576	137788	0.00
83 Perylene-d12	83290	41645	166580	83290	0.00

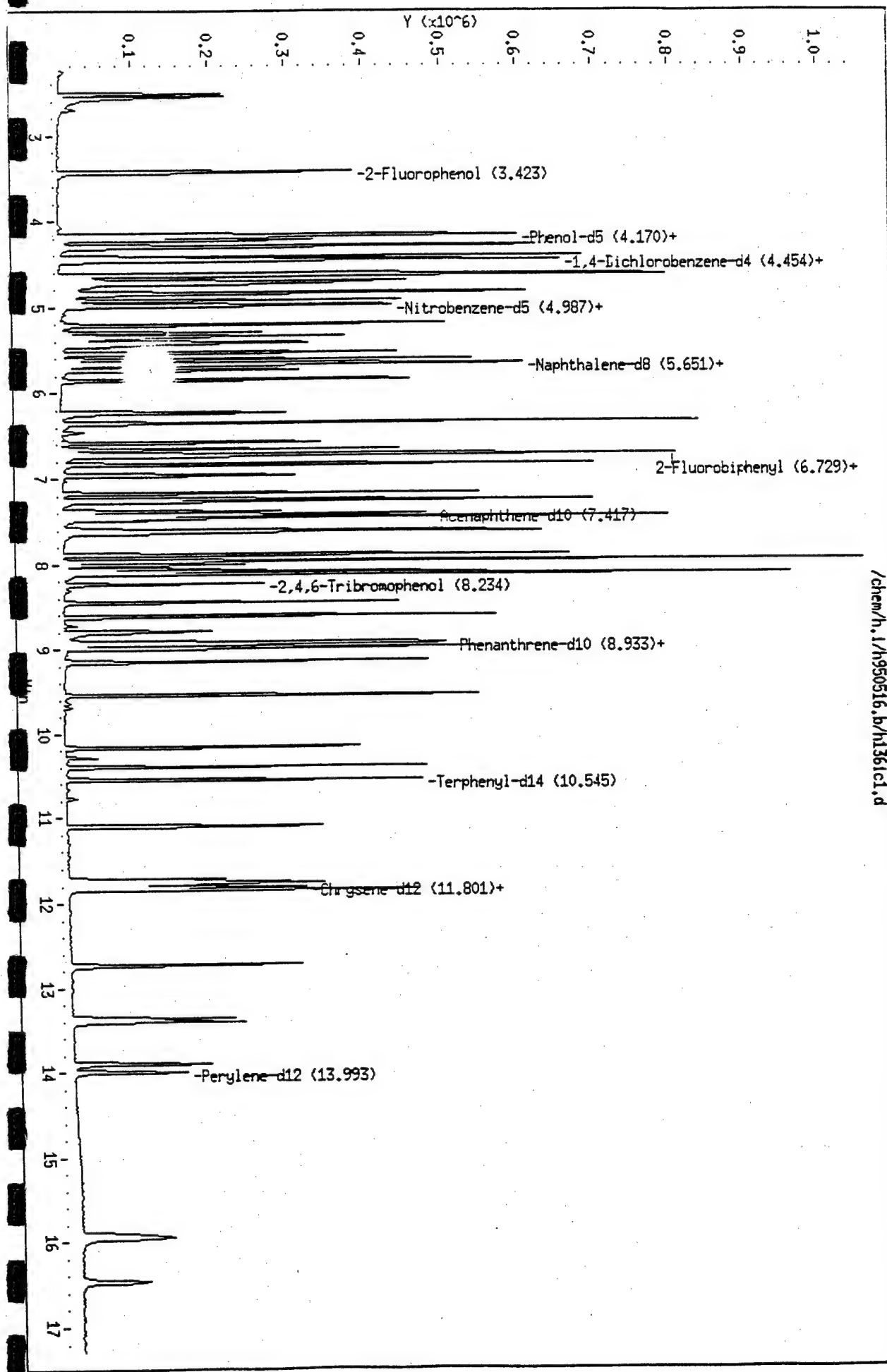
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.45	0.00
32 Naphthalene-d8	5.65	5.15	6.15	5.65	0.00
48 Acenaphthene-d10	7.42	6.92	7.92	7.42	0.00
65 Phenanthrene-d10	8.92	8.42	9.42	8.92	0.00
76 Chrysene-d12	11.78	11.28	12.28	11.78	0.00
83 Perylene-d12	13.99	13.49	14.49	13.99	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361cl.d  
Date: 16-MAY-96 11:52  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950516.b/h1361cl.d





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Data file : /chem/h.i/h950516.b/h136ic4.d

Lab Smp Id:

Inj Date : 16-MAY-1995 14:16

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD080

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.548	2.546	(0.573)	188941	65	32
5 Phenol	94.00	4.171	4.170	(0.939)	275716	67	34
6 Aniline	93.00	4.195	4.193	(0.944)	255180	77	38
7 bis(2-Chloroethyl)ether	93.00	4.219	4.217	(0.949)	253177	69	35
9 2-Chlorophenol	128.00	4.302	4.300	(0.968)	260817	75	37
10 1,3-Dichlorobenzene	146.00	4.420	4.418	(0.995)	298691	74	37
12 1,4-Dichlorobenzene	146.00	4.456	4.466	(1.003)	292325	76	38
13 Benzyl alcohol	108.00	4.788	4.679	(1.077)	49264	82	41 (QM)
15 1,2-Dichlorobenzene	146.00	4.634	4.632	(1.043)	257245	71	36
16 2-Methylphenol	108.00	4.693	4.703	(1.056)	255747	74	37
18 bis(2-chloroisopropyl)ether	45.00	4.717	4.715	(1.061)	153364	71	35
19 4-Methylphenol	108.00	4.835	4.833	(1.088)	235987	71	35
21 N-Nitroso-di-n-propylamine	70.00	4.847	4.845	(1.091)	124427	78	39
22 Hexachloroethane	117.00	4.918	4.916	(1.107)	110271	79	39
24 Nitrobenzene	77.00	4.989	4.987	(0.884)	212202	77	38
25 Isophorone	82.00	5.202	5.201	(0.922)	389517	75	37
26 2-Nitrophenol	139.00	5.285	5.295	(0.937)	151284	78	39
27 2,4-Dimethylphenol	107.00	5.333	5.331	(0.945)	272911	84	42
28 Benzoic acid	122.00	5.475	5.449	(0.971)	132238	91	45
29 bis(2-Chloroethoxy)methane	93.00	5.404	5.414	(0.958)	208455	71	36
30 2,4-Dichlorophenol	162.00	5.534	5.532	(0.981)	210066	79	40
31 1,2,4-Trichlorobenzene	180.00	5.605	5.603	(0.994)	224678	75	38
33 Naphthalene	128.00	5.665	5.675	(1.004)	635864	72	36
34 4-Chloroaniline	127.00	5.724	5.734	(1.015)	248494	84	42
35 Hexachlorobutadiene	225.00	5.842	5.852	(1.036)	145720	84	42
36 4-Chloro-3-methylphenol	107.00	6.233	6.232	(1.105)	222884	86	43
37 2-Methylnaphthalene	142.00	6.352	6.350	(1.126)	442101	77	39
38 Hexachlorocyclopentadiene	237.00	6.577	6.587	(0.887)	162874	88	44
39 2,4,6-Trichlorophenol	196.00	6.660	6.658	(0.898)	136235	76	38

Compounds	QUANT SIG		RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
	MASS						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00		6.707	6.717	(0.904)	183810	82	41
42 2-Chloronaphthalene	162.00		6.838	6.836	(0.922)	411469	74	37
43 2-Nitroaniline	65.00		6.956	6.966	(0.938)	108730	82	41
44 Dimethylphthalate	163.00		7.170	7.168	(0.966)	499610	74	37
45 2,6-Dinitrotoluene	165.00		7.241	7.239	(0.976)	129019	82	41
46 Acenaphthylene	152.00		7.264	7.263	(0.979)	662983	74	37
47 3-Nitroaniline	138.00		7.383	7.381	(0.995)	123112	84	42
49 Acenaphthene	153.00		7.454	7.452	(1.005)	386814	74	37
50 2,4-Dinitrophenol	184.00		7.478	7.488	(1.008)	70750	110	53
51 4-Nitrophenol	109.00		7.584	7.582	(1.022)	69934	110	53
52 Dibenzofuran	168.00		7.608	7.618	(1.026)	562640	73	36
53 2,4-Dinitrotoluene	165.00		7.632	7.630	(1.029)	158658	80	40
54 Diethylphthalate	149.00		7.892	7.891	(1.064)	525637	79	40
55 4-Chlorophenyl-phenylether	204.00		7.952	7.962	(1.072)	204094	74	37
56 Fluorene	166.00		7.964	7.962	(1.073)	375787	73	37
57 4-Nitroaniline	138.00		8.011	8.009	(1.080)	115306	86	43
58 4,6-Dinitro-2-methylphenol	198.00		8.058	8.056	(0.904)	96206	91	46
59 n-Nitrosodiphenylamine	169.00		8.082	8.080	(0.907)	287922	75	38
60 1,2-Diphenylhydrazine	77.00		8.118	8.116	(0.911)	688452	74	37
62 4-Bromophenyl-phenylether	248.00		8.449	8.448	(0.948)	141928	77	38
63 Hexachlorobenzene	283.70		8.603	8.613	(0.965)	171407	76	38
64 Pentachlorophenol	265.50		8.793	8.791	(0.987)	105835	87	44
66 Phenanthrene	178.00		8.935	8.945	(1.003)	574740	76	38
67 Anthracene	178.00		8.983	8.981	(1.008)	552606	71	36
68 Carbazole	167.00		9.137	9.147	(1.025)	484893	77	38
69 Di-n-butylphthalate	149.00		9.528	9.538	(1.069)	711404	72	36
70 Fluoranthene	202.00		10.156	10.166	(1.140)	510736	80	40
71 Pyrene	202.00		10.381	10.391	(0.883)	493428	78	39
73 Butylbenzylphthalate	149.00		11.080	11.090	(0.943)	252074	79	39
74 3,3'-Dichlorobenzidine	252.00		11.708	11.718	(0.996)	136090	80	40
75 Benzo[a]anthracene	228.00		11.732	11.754	(0.998)	381888	80	40
77 Chrysene	228.00		11.791	11.801	(1.003)	338037	77	39
78 bis(2-Ethylhexyl)phthalate	149.00		11.815	11.837	(1.005)	298762	73	36
79 Di-n-octylphthalate	149.00		12.704	12.725	(0.909)	468657	77	38
80 Benzo[b]fluoranthene	252.00		13.344	13.365	(0.955)	348797	90	45
81 Benzo[k]fluoranthene	252.00		13.391	13.401	(0.958)	326441	66	33
82 Benzo[a]pyrene	252.00		13.877	13.899	(0.993)	268506	80	40
84 Indeno[1,2,3-cd]pyrene	276.00		15.891	15.925	(1.137)	253979	80	40
85 Dibenz[a,h]anthracene	278.00		15.927	15.949	(1.140)	204883	81	40
86 Benzo[g,h,i]perylene	276.00		16.436	16.458	(1.176)	205814	82	41
\$ 3 2-Fluorophenol	112.00		3.425	3.423	(0.771)	255106	73	37
\$ 4 Phenol-d5	99.00		4.160	4.158	(0.936)	260704	70	35
\$ 61 2,4,6-Tribromophenol	329.70		8.224	8.234	(0.923)	82352	79	39
\$ 23 Nitrobenzene-d5	82.00		4.965	4.964	(0.880)	224916	78	39
\$ 41 2-Fluorobiphenyl	172.00		6.731	6.729	(0.907)	437090	71	35
\$ 72 Terphenyl-d14	244.00		10.535	10.545	(0.896)	346643	78	39
* 11 1,4-Dichlorobenzene-d4	152.00		4.444	4.454	(1.000)	102691	40	
* 32 Naphthalene-d8	136.00		5.641	5.651	(1.000)	354785	40	
* 48 Acenaphthene-d10	164.00		7.418	7.417	(1.000)	187340	40	

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	==	=====	=====	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.912	8.922	(1.000)	258459	40	
* 76 Chrysene-d12	240.00	11.756	11.777	(1.000)	159676	40	
* 83 Perylene-d12	264.00	13.972	13.993	(1.000)	96974	40	
17 ortho-Cresol	108.00	4.693	4.703	(1.056)	255747	74	37
20 meta,para-Cresol	108.00	4.835	4.833	(1.088)	235987	71	35
96 Benzidine	184.00	10.760	10.770	(0.915)	4187	90	45

#### QC Flag Legend

Q - Qualifier signal failed the ratio test.  
M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h136ic4.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950516.b/hclpw.m  
 Misc Info: 950516 STD080

Calibration Date: 05/16/95  
 Calibration Time: 1152  
 Level: LOW  
 Sample Type: WATER

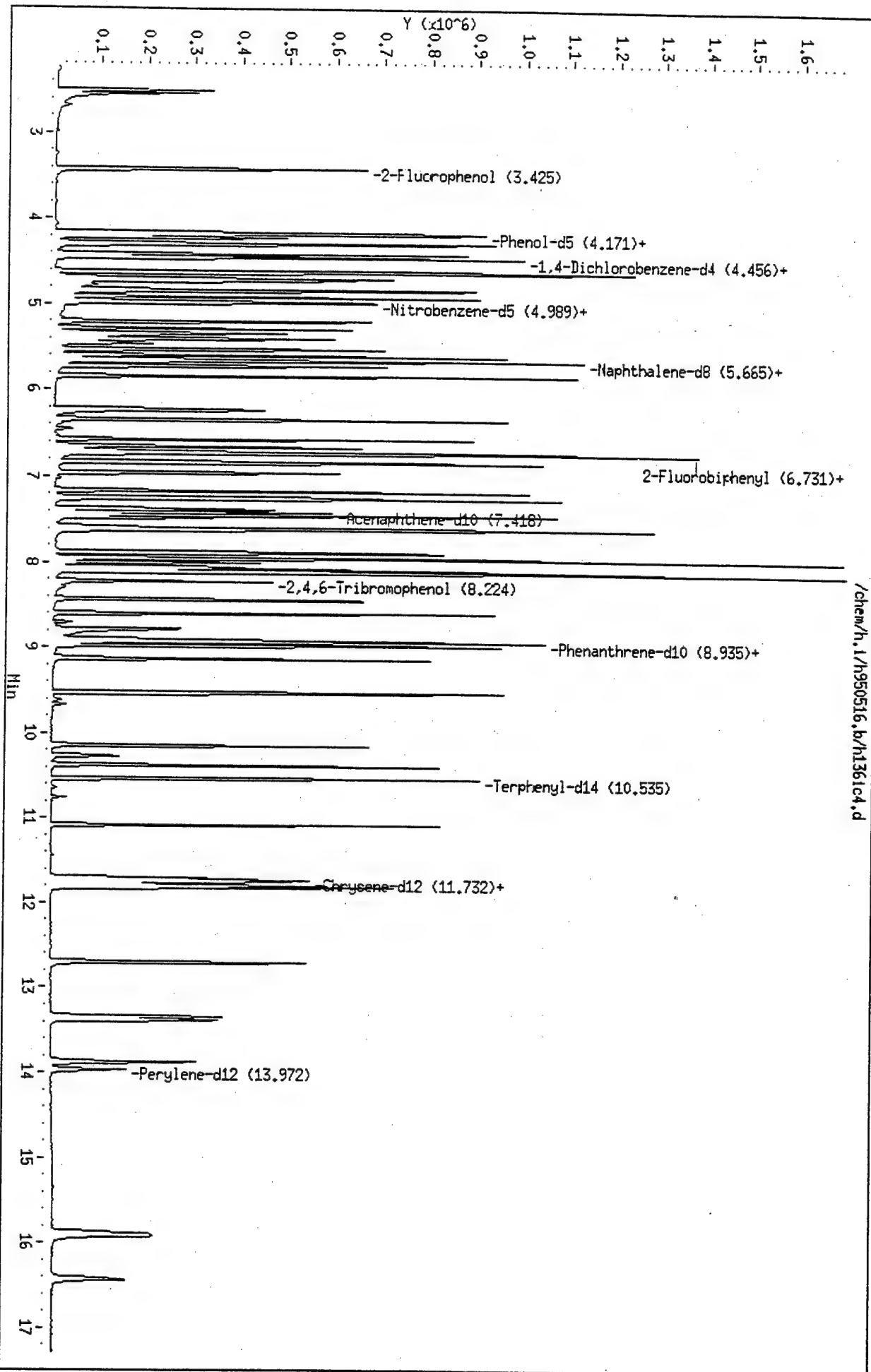
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	102691	-0.48
32 Naphthalene-d8	348029	174014	696058	354785	1.94
48 Acenaphthene-d10	171424	85712	342848	187340	9.28
65 Phenanthrene-d10	222794	111397	445588	258459	16.01
76 Chrysene-d12	137788	68894	275576	159676	15.89
83 Perylene-d12	83290	41645	166580	96974	16.43

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.44	-0.22
32 Naphthalene-d8	5.65	5.15	6.15	5.64	-0.18
48 Acenaphthene-d10	7.42	6.92	7.92	7.42	0.02
65 Phenanthrene-d10	8.92	8.42	9.42	8.91	-0.11
76 Chrysene-d12	11.78	11.28	12.28	11.76	-0.19
83 Perylene-d12	13.99	13.49	14.49	13.97	-0.16

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c4.d  
Date : 16-MAY-95 14:16  
Client ID:  
Sample Info: STD-82704/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic3.d

Lab Smp Id:

Inj Date : 16-MAY-1995 12:41

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD120

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 4

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.547	2.546	(0.572)	313371	96	48
5 Phenol	94.00	4.183	4.170	(0.939)	389614	86	43 (Q)
6 Aniline	93.00	4.195	4.193	(0.941)	420610	110	57
7 bis(2-Chloroethyl) ether	93.00	4.230	4.217	(0.949)	373614	92	46
9 2-Chlorophenol	128.00	4.313	4.300	(0.968)	388309	100	50
10 1,3-Dichlorobenzene	146.00	4.420	4.418	(0.992)	439830	98	49
12 1,4-Dichlorobenzene	146.00	4.467	4.466	(1.003)	427559	99	50
13 Benzyl alcohol	108.00	4.740	4.679	(1.064)	73603	110	55 (QM)
15 1,2-Dichlorobenzene	146.00	4.633	4.632	(1.040)	376343	94	47
16 2-Methylphenol	108.00	4.704	4.703	(1.056)	422160	110	55
18 bis(2-chloroisopropyl) ether	45.00	4.716	4.715	(1.058)	229872	95	48
19 4-Methylphenol	108.00	4.846	4.833	(1.088)	336572	90	45
21 N-Nitroso-di-n-propylamine	70.00	4.858	4.845	(1.090)	187335	100	52
22 Hexachloroethane	117.00	4.917	4.916	(1.104)	169968	110	54
24 Nitrobenzene	77.00	5.000	4.987	(0.885)	324480	100	53
25 Isophorone	82.00	5.226	5.201	(0.925)	631868	110	54
26 2-Nitrophenol	139.00	5.297	5.295	(0.937)	236270	110	55
27 2,4-Dimethylphenol	107.00	5.344	5.331	(0.945)	425892	120	59
28 Benzoic acid	122.00	5.510	5.449	(0.975)	239260	150	74
29 bis(2-Chloroethoxy) methane	93.00	5.415	5.414	(0.958)	315477	97	48
30 2,4-Dichlorophenol	162.00	5.546	5.532	(0.981)	321306	110	54
31 1,2,4-Trichlorobenzene	180.00	5.617	5.603	(0.994)	340696	100	51
33 Naphthalene	128.00	5.676	5.675	(1.004)	949251	96	48
34 4-Chloroaniline	127.00	5.735	5.734	(1.015)	378800	120	58
35 Hexachlorobutadiene	225.00	5.854	5.852	(1.036)	226704	120	59
36 4-Chloro-3-methylphenol	107.00	6.233	6.232	(1.103)	352731	120	61
37 2-Methylnaphthalene	142.00	6.351	6.350	(1.124)	652800	100	51
38 Hexachlorocyclopentadiene	237.00	6.588	6.587	(0.887)	256398	130	64
39 2,4,6-Trichlorophenol	196.00	6.671	6.658	(0.898)	213151	110	55

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	----	==	=====	=====	-----	-----	-----	-----
40 2,4,5-Trichlorophenol		196.00	6.719	6.717	(0.904)	271545	110	57
42 2-Chloronaphthalene		162.00	6.849	6.836	(0.922)	609702	100	51
43 2-Nitroaniline		65.00	6.968	6.966	(0.938)	166624	120	59
44 Dimethylphthalate		163.00	7.181	7.168	(0.967)	725772	100	50
45 2,6-Dinitrotoluene		165.00	7.252	7.239	(0.976)	180916	110	54
46 Acenaphthylene		152.00	7.276	7.263	(0.979)	944965	98	49
47 3-Nitroaniline		138.00	7.394	7.381	(0.995)	177344	110	57
49 Acenaphthene		153.00	7.465	7.452	(1.005)	564816	100	51
50 2,4-Dinitrophenol		184.00	7.489	7.488	(1.008)	111259	160	78
51 4-Nitrophenol		109.00	7.596	7.582	(1.022)	104999	150	74 (Q)
52 Dibenzofuran		168.00	7.619	7.618	(1.026)	793997	96	48
53 2,4-Dinitrotoluene		165.00	7.643	7.630	(1.029)	224595	100	52
54 Diethylphthalate		149.00	7.904	7.891	(1.064)	730138	100	51
55 4-Chlorophenyl-phenylether		204.00	7.963	7.962	(1.072)	279818	95	47
56 Fluorene		166.00	7.975	7.962	(1.073)	517183	94	47
57 4-Nitroaniline		138.00	8.022	8.009	(1.080)	162254	110	56
58 4,6-Dinitro-2-methylphenol		198.00	8.070	8.056	(0.904)	135735	130	66
59 n-Nitrosodiphenylamine		169.00	8.093	8.080	(0.907)	394150	110	53
60 1,2-Diphenylhydrazine		77.00	8.129	8.116	(0.911)	980691	110	54
62 4-Bromophenyl-phenylether		248.00	8.461	8.448	(0.948)	194355	110	54
63 Hexachlorobenzene		283.70	8.615	8.613	(0.965)	239544	110	54
64 Pentachlorophenol		265.50	8.804	8.791	(0.987)	154669	130	66
66 Phenanthrene		178.00	8.947	8.945	(1.003)	741575	100	50
67 Anthracene		178.00	8.994	8.981	(1.008)	743469	99	49
68 Carbazole		167.00	9.160	9.147	(1.027)	641416	100	52
69 Di-n-butylphthalate		149.00	9.551	9.538	(1.070)	961210	100	50
70 Fluoranthene		202.00	10.167	10.166	(1.139)	668680	110	54
71 Pyrene		202.00	10.392	10.391	(0.882)	640318	100	52
73 Butylbenzylphthalate		149.00	11.103	11.090	(0.943)	343416	110	55
74 3,3'-Dichlorobenzidine		252.00	11.731	11.718	(0.996)	200527	120	61
75 Benzo[a]anthracene		228.00	11.755	11.754	(0.998)	509641	110	55
77 Chrysene		228.00	11.814	11.801	(1.003)	467268	110	55
78 bis(2-Ethylhexyl)phthalate		149.00	11.838	11.837	(1.005)	414137	100	52
79 Di-n-octylphthalate		149.00	12.727	12.725	(0.909)	697804	120	59
80 Benzo[b]fluoranthene		252.00	13.367	13.365	(0.955)	452050	120	60
81 Benzo[k]fluoranthene		252.00	13.414	13.401	(0.959)	453894	94	47
82 Benzo[a]pyrene		252.00	13.912	13.899	(0.994)	377984	120	58
84 Indeno[1,2,3-cd]pyrene		276.00	15.938	15.925	(1.139)	390966	130	63
85 Dibenz[a,h]anthracene		278.00	15.962	15.949	(1.141)	322959	130	65
86 Benzo[g,h,i]perylene		276.00	16.483	16.458	(1.178)	316289	130	65
\$ 3 2-Fluorophenol		112.00	3.436	3.423	(0.771)	397060	100	51
\$ 4 Phenol-d5		99.00	4.171	4.158	(0.936)	387229	93	46
\$ 61 2,4,6-Tribromophenol		329.70	8.236	8.234	(0.923)	117707	120	58
\$ 23 Nitrobenzene-d5		82.00	4.977	4.964	(0.880)	358924	110	56
\$ 41 2-Fluorobiphenyl		172.00	6.742	6.729	(0.907)	635030	96	48
\$ 72 Terphenyl-d14		244.00	10.546	10.545	(0.895)	454390	100	53
* 11 1,4-Dichlorobenzene-d4		152.00	4.455	4.454	(1.000)	114323	40	
* 32 Naphthalene-d8		136.00	5.652	5.651	(1.000)	394576	40	
* 48 Acenaphthene-d10		164.00	7.430	7.417	(1.000)	201146	40	

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ng)	FINAL ( ug/L)
=====		=====	=====	=====	=====	=====	=====	=====
* 65 Phenanthrene-d10		188.00	8.923	8.922	(1.000)	250391	40	
* 76 Chrysene-d12		240.00	11.779	11.777	(1.000)	154459	40	
* 83 Perylene-d12		264.00	13.995	13.993	(1.000)	94735	40	
17 ortho-Cresol		108.00	4.704	4.703	(1.056)	422160	110	55
20 meta,para-Cresol		108.00	4.846	4.833	(1.088)	336572	90	45
96 Benzidine		184.00	10.771	10.770	(0.914)	6137	140	68

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- M - Compound response manually integrated.



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INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic3.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD120

Calibration Date: 05/16/95  
Calibration Time: 1152

Level: LOW  
Sample Type: WATER

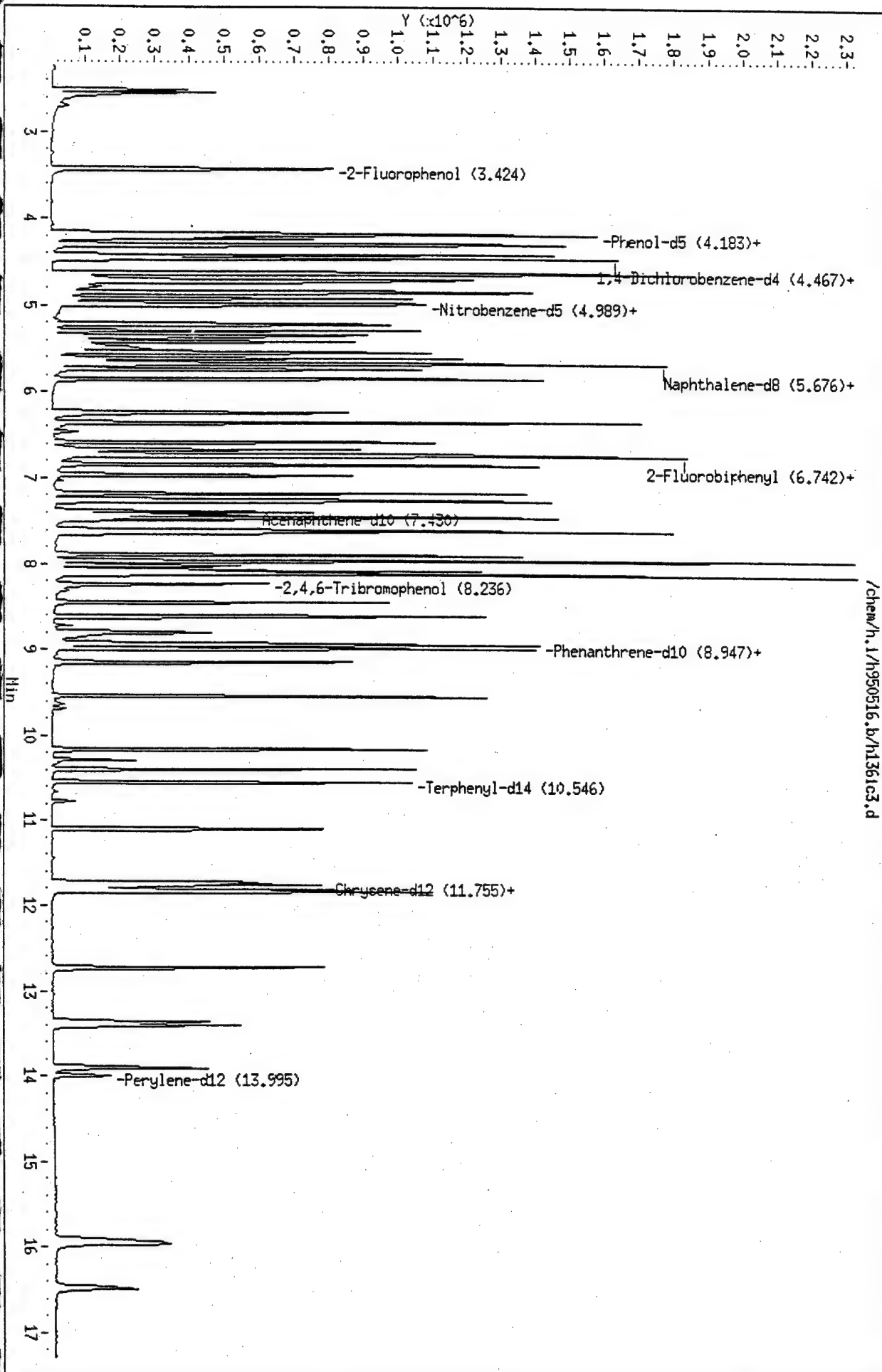
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	114323	10.80
32 Naphthalene-d8	348029	174014	696058	394576	13.37
48 Acenaphthene-d10	171424	85712	342848	201146	17.34
65 Phenanthrene-d10	222794	111397	445588	250391	12.39
76 Chrysene-d12	137788	68894	275576	154459	12.10
83 Perylene-d12	83290	41645	166580	94735	13.74

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.46	0.03
32 Naphthalene-d8	5.65	5.15	6.15	5.65	0.02
48 Acenaphthene-d10	7.42	6.92	7.92	7.43	0.18
65 Phenanthrene-d10	8.92	8.42	9.42	8.92	0.01
76 Chrysene-d12	11.78	11.28	12.28	11.78	0.01
83 Perylene-d12	13.99	13.49	14.49	13.99	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c3.d  
Date : 16-MAY-95 12:41  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic2.d

Lab Smp Id:

Inj Date : 16-MAY-1995 14:41

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD160

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 3

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.546	2.546	(0.573)	329510	130	67
5 Phenol	94.00	4.182	4.170	(0.941)	375622	110	55 (Q)
6 Aniline	93.00	4.193	4.193	(0.944)	365661	130	66
7 bis(2-Chloroethyl)ether	93.00	4.217	4.217	(0.949)	375204	120	61
9 2-Chlorophenol	128.00	4.300	4.300	(0.968)	382636	130	66
10 1,3-Dichlorobenzene	146.00	4.419	4.418	(0.995)	440865	130	65
12 1,4-Dichlorobenzene	146.00	4.454	4.466	(1.003)	445009	140	69
13 Benzyl alcohol	108.00	4.786	4.679	(1.077)	67471	130	67 (QM)
15 1,2-Dichlorobenzene	146.00	4.632	4.632	(1.043)	371528	120	61
16 2-Methylphenol	108.00	4.691	4.703	(1.056)	376067	130	65
18 bis(2-chloroisopropyl)ether	45.00	4.703	4.715	(1.059)	219587	120	60
19 4-Methylphenol	108.00	4.833	4.833	(1.088)	313610	110	56
21 N-Nitroso-di-n-propylamine	70.00	4.845	4.845	(1.091)	172548	130	64 (Q)
22 Hexachloroethane	117.00	4.916	4.916	(1.107)	169889	140	72
24 Nitrobenzene	77.00	4.987	4.987	(0.884)	312306	140	71
25 Isophorone	82.00	5.213	5.201	(0.924)	574751	140	69
26 2-Nitrophenol	139.00	5.284	5.295	(0.937)	222713	140	72
27 2,4-Dimethylphenol	107.00	5.343	5.331	(0.947)	409095	160	79
28 Benzoic acid	122.00	5.485	5.449	(0.973)	222556	190	96
29 bis(2-Chloroethoxy)methane	93.00	5.402	5.414	(0.958)	286611	120	62
30 2,4-Dichlorophenol	162.00	5.533	5.532	(0.981)	299989	140	71
31 1,2,4-Trichlorobenzene	180.00	5.604	5.603	(0.994)	325869	140	69
33 Naphthalene	128.00	5.663	5.675	(1.004)	893982	130	63
34 4-Chloroaniline	127.00	5.722	5.734	(1.015)	351590	150	75
35 Hexachlorobutadiene	225.00	5.841	5.852	(1.036)	219914	160	80
36 4-Chloro-3-methylphenol	107.00	6.220	6.232	(1.103)	324914	160	79
37 2-Methylnaphthalene	142.00	6.338	6.350	(1.124)	611089	130	67
38 Hexachlorocyclopentadiene	237.00	6.575	6.587	(0.888)	238578	170	84
39 2,4,6-Trichlorophenol	196.00	6.658	6.658	(0.899)	188233	140	69

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.706	6.717	(0.906)	257166	150	76
42 2-Chloronaphthalene	162.00	6.824	6.836	(0.922)	561754	130	66
43 2-Nitroaniline	65.00	6.955	6.966	(0.939)	151110	150	75
44 Dimethylphthalate	163.00	7.168	7.168	(0.968)	659341	130	64
45 2,6-Dinitrotoluene	165.00	7.239	7.239	(0.978)	165254	140	69
46 Acenaphthylene	152.00	7.251	7.263	(0.979)	863263	130	63
47 3-Nitroaniline	138.00	7.381	7.381	(0.997)	161876	150	73
49 Acenaphthene	153.00	7.440	7.452	(1.005)	507530	130	64
50 2,4-Dinitrophenol	184.00	7.476	7.488	(1.010)	99712	200	99
51 4-Nitrophenol	109.00	7.583	7.582	(1.024)	92459	180	92 (Q)
52 Dibenzofuran	168.00	7.606	7.618	(1.027)	727775	120	62
53 2,4-Dinitrotoluene	165.00	7.630	7.630	(1.030)	203427	130	67
54 Diethylphthalate	149.00	7.879	7.891	(1.064)	662276	130	66
55 4-Chlorophenyl-phenylether	204.00	7.950	7.962	(1.074)	263879	120	63
56 Fluorene	166.00	7.950	7.962	(1.074)	477106	120	61
57 4-Nitroaniline	138.00	8.009	8.009	(1.082)	141993	140	69
58 4,6-Dinitro-2-methylphenol	198.00	8.057	8.056	(0.905)	119211	170	86
59 n-Nitrosodiphenylamine	169.00	8.080	8.080	(0.908)	351323	140	70
60 1,2-Diphenylhydrazine	77.00	8.104	8.116	(0.911)	937736	150	77
62 4-Bromophenyl-phenylether	248.00	8.436	8.448	(0.948)	174803	140	72
63 Hexachlorobenzene	283.70	8.602	8.613	(0.967)	219083	150	73
64 Pentachlorophenol	265.50	8.780	8.791	(0.987)	138373	170	87
66 Phenanthrene	178.00	8.922	8.945	(1.003)	6'4857	140	68
67 Anthracene	178.00	8.969	8.981	(1.008)	670722	130	66
68 Carbazole	167.00	9.135	9.147	(1.027)	563919	140	68
69 Di-n-butylphthalate	149.00	9.526	9.538	(1.071)	855201	130	66
70 Fluoranthene	202.00	10.142	10.166	(1.140)	593938	140	70
71 Pyrene	202.00	10.367	10.391	(0.882)	581341	130	67
73 Butylbenzylphthalate	149.00	11.078	11.090	(0.943)	333282	150	76
74 3,3'-Dichlorobenzidine	252.00	11.707	11.718	(0.996)	193546	170	83
75 Benzo[a]anthracene	228.00	11.730	11.754	(0.998)	479463	150	73
77 Chrysene	228.00	11.789	11.801	(1.003)	441697	150	74
78 bis(2-Ethylhexyl)phthalate	149.00	11.813	11.837	(1.005)	409071	140	73
79 Di-n-octylphthalate	149.00	12.702	12.725	(0.909)	688326	150	73
80 Benzo[b]fluoranthene	252.00	13.342	13.365	(0.955)	509041	170	85
81 Benzo[k]fluoranthene	252.00	13.377	13.401	(0.958)	434137	110	56
82 Benzo[a]pyrene	252.00	13.875	13.899	(0.993)	396609	150	76
84 Indeno[1,2,3-cd]pyrene	276.00	15.890	15.925	(1.137)	427038	180	88
85 Dibenz[a,h]anthracene	278.00	15.925	15.949	(1.140)	344805	180	88
86 Benzo[g,h,i]perylene	276.00	16.447	16.458	(1.177)	338410	180	88
\$ 3 2-Fluorophenol	112.00	3.423	3.423	(0.771)	393997	130	67
\$ 4 Phenol-d5	99.00	4.170	4.158	(0.939)	370609	120	59
\$ 61 2,4,6-Tribromophenol	329.70	8.223	8.234	(0.924)	123123	180	90
\$ 23 Nitrobenzene-d5	82.00	4.964	4.964	(0.880)	3'2080	150	74 (R)
\$ 41 2-Fluorobiphenyl	172.00	6.729	6.729	(0.909)	578635	120	62 (R)
\$ 72 Terphenyl-d14	244.00	10.533	10.545	(0.896)	429978	140	71 (R)
* 11 1,4-Dichlorobenzene-d4	152.00	4.442	4.454	(1.000)	86132	40	
* 32 Naphthalene-d8	136.00	5.639	5.651	(1.000)	281607	40	
* 48 Acenaphthene-d10	164.00	7.405	7.417	(1.000)	142545	40	

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
*****	----	==	=====	=====	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.898	8.922	(1.000)	169938	40	
* 76 Chrysene-d12	240.00	11.754	11.777	(1.000)	109143	40	
* 83 Perylene-d12	264.00	13.970	13.993	(1.000)	74928	40	
17 ortho-Cresol	108.00	4.691	4.763	(1.056)	376067	130	65
20 meta,para-Cresol	108.00	4.833	4.833	(1.088)	313610	110	56
96 Benzidine	184.00	10.747	10.770	(0.914)	6200	200	98

#### QC Flag Legend

Q - Qualifier signal failed the ratio test.  
R - Spike/Surrogate failed recovery limits.  
M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136ic2.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclpw.m  
Misc Info: 950516 STD160

Calibration Date: 05/16/95  
Calibration Time: 1152

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	86132	-16.53
32 Naphthalene-d8	348029	174014	696058	281607	-19.09
48 Acenaphthene-d10	171424	85712	342848	142545	-16.85
65 Phenanthrene-d10	222794	111397	445588	169938	-23.72
76 Chrysene-d12	137788	68894	275576	109143	-20.79
83 Perylene-d12	83290	41645	166580	74928	-10.04

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.44	-0.26
32 Naphthalene-d8	5.65	5.15	6.15	5.64	-0.21
48 Acenaphthene-d10	7.42	6.92	7.92	7.40	-0.16
65 Phenanthrene-d10	8.92	8.42	9.42	8.90	-0.26
76 Chrysene-d12	11.78	11.28	12.28	11.75	-0.20
83 Perylene-d12	13.99	13.49	14.49	13.97	-0.17

AREA UPPER LIMIT = +100% of internal standard area.

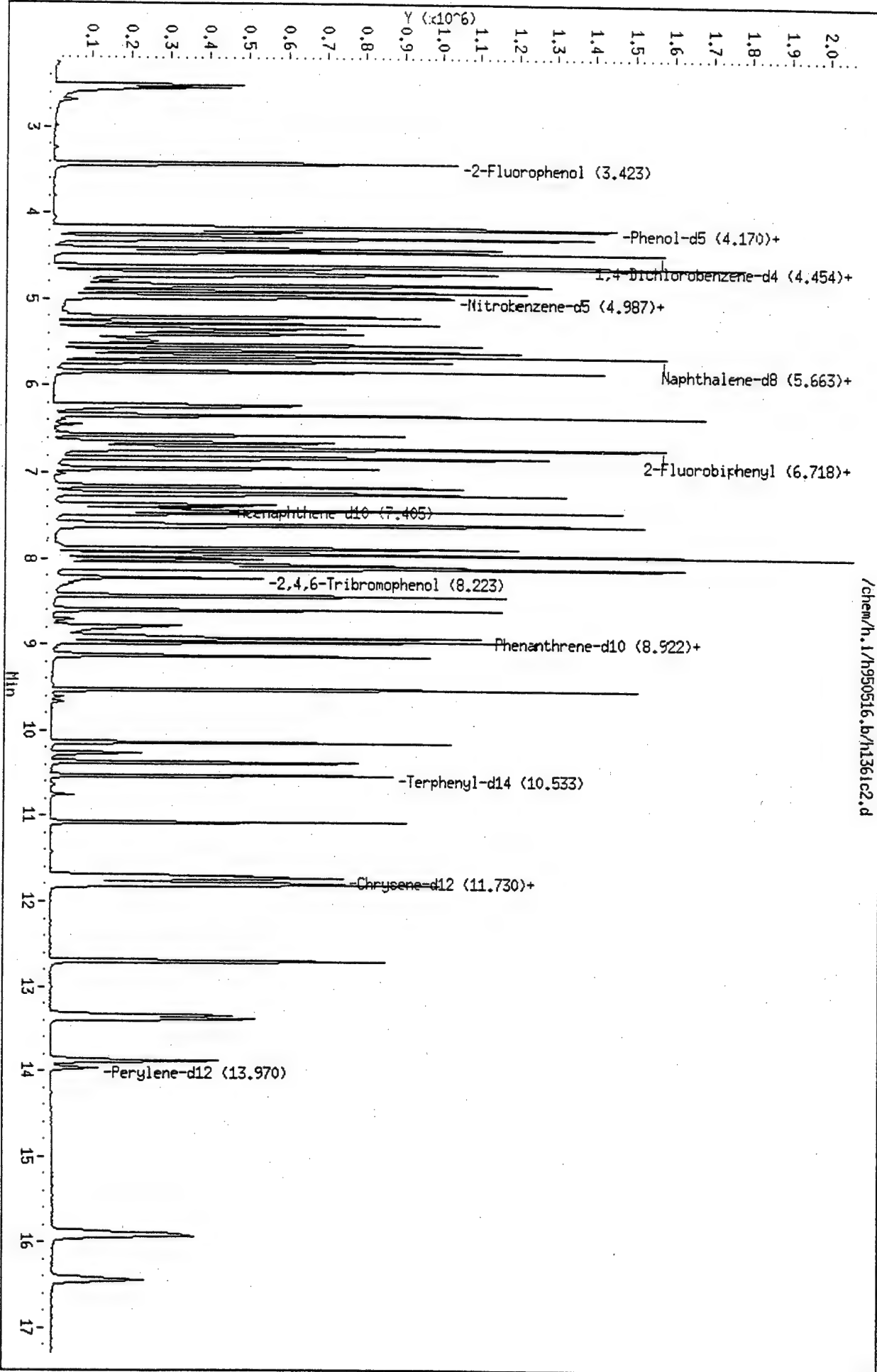
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361c2.d  
Date : 16-MAY-95 14:41  
Client ID:  
Sample Info: STD-82704/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h135cc1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 15-MAY-1995 15:26  
Init. Calibration Date(s): 05/09/95 05/09/95  
Init. Calibration Times: 09:16 09:49  
Method File: /chem/h.i/h950515.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
2 Pyridine	2.419	1.433	0.010	40.7	50.0
5 Phenol	2.105	1.704	0.800	19.0	30.0
6 Aniline	2.916	0.871	0.010	70.1	100.0
7 bis(2-Chloroethyl)ether	2.177	2.114	0.700	2.9	25.0
9 2-Chlorophenol	1.444	1.344	0.800	7.0	25.0
10 1,3-Dichlorobenzene	1.503	1.498	0.600	0.3	25.0
12 1,4-Dichlorobenzene	1.418	1.466	0.500	3.4	30.0
13 Benzyl alcohol	1.080	0.246	0.010	77.2	100.0
15 1,2-Dichlorobenzene	1.232	1.365	0.400	10.8	25.0
16 2-Methylphenol	1.400	1.426	0.700	1.9	40.0
18 bis(2-chloroisopropyl)ether	3.170	1.003	0.010	68.3	100.0
19 4-Methylphenol	1.565	1.194	0.600	23.7	25.0
21 N-Nitroso-di-n-propylamine	1.231	0.645	0.050	47.6	50.0
22 Hexachloroethane	0.625	0.540	0.300	13.5	25.0
24 Nitrobenzene	0.401	0.298	0.200	25.7	25.0
25 Isophorone	0.906	0.605	0.400	33.2	50.0
26 2-Nitrophenol	0.196	0.190	0.100	3.1	30.0
27 2,4-Dimethylphenol	0.364	0.344	0.200	5.5	25.0
28 Benzoic acid	0.199	0.159	0.010	20.1	40.0
29 bis(2-Chloroethoxy)methane	0.498	0.366	0.300	26.6	40.0
30 2,4-Dichlorophenol	0.258	0.284	0.200	10.0	30.0
31 1,2,4-Trichlorobenzene	0.261	0.314	0.200	20.0	25.0
33 Naphthalene	0.922	1.006	0.700	9.1	25.0
34 4-Chloroaniline	0.420	0.307	0.010	26.8	40.0
35 Hexachlorobutadiene	0.125	0.163	0.010	29.6	30.0
36 4-Chloro-3-methylphenol	0.284	0.273	0.200	4.1	30.0
37 2-Methylnaphthalene	0.566	0.636	0.400	12.3	25.0
38 Hexachlorocyclopentadiene	0.350	0.362	0.050	3.6	40.0
39 2,4,6-Trichlorophenol	0.386	0.378	0.200	1.9	30.0
40 2,4,5-Trichlorophenol	0.393	0.448	0.200	14.0	25.0
42 2-Chloronaphthalene	1.106	1.209	0.800	9.4	25.0
43 2-Nitroaniline	0.454	0.294	0.010	35.1	40.0
44 Dimethylphthalate	1.302	1.387	0.010	6.5	40.0
45 2,6-Dinitrotoluene	0.295	0.332	0.200	12.6	25.0
46 Acenaphthylene	1.815	1.970	1.300	8.5	25.0
47 3-Nitroaniline	0.375	0.319	0.010	14.9	40.0
49 Acenaphthene	1.050	1.126	0.800	7.3	30.0
50 2,4-Dinitrophenol	0.122	0.150	0.050	22.6	40.0
51 4-Nitrophenol	0.117	0.128	0.050	9.4	40.0
52 Dibenzofuran	1.437	1.662	0.800	15.6	25.0



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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h135cc1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 15-MAY-1995 15:26  
Init. Calibration Date(s): 05/09/95 05/09/95  
Init. Calibration Times: 09:16 09:49  
Method File: /chem/h.i/h950515.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
53 2,4-Dinitrotoluene	0.331	0.434	0.200	31.2	40.0
54 Diethylphthalate	1.307	1.342	0.010	2.7	40.0
55 4-Chlorophenyl-phenylether	0.466	0.561	0.400	20.2	25.0
56 Fluorene	1.015	1.131	0.900	11.4	40.0
57 4-Nitroaniline	0.354	0.319	0.010	9.8	40.0
58 4,6-Dinitro-2-methylphenol	0.143	0.160	0.010	11.5	50.0
59 n-Nitrosodiphenylamine	0.601	0.570	0.010	5.1	30.0
60 1,2-Diphenylhydrazine	2.390	1.448	0.010	39.4	40.0
62 4-Bromophenyl-phenylether	0.238	0.260	0.100	9.1	25.0
63 Hexachlorobenzene	0.267	0.306	0.100	14.7	25.0
64 Pentachlorophenol	0.158	0.171	0.050	8.1	30.0
66 Phenanthrene	1.161	1.191	0.700	2.6	25.0
67 Anthracene	1.139	1.169	0.700	2.6	25.0
68 Carbazole	1.112	1.055	0.010	5.2	40.0
69 Di-n-butylphthalate	1.705	1.460	0.010	14.4	40.0
70 Fluoranthene	0.987	1.053	0.600	6.6	30.0
71 Pyrene	1.511	1.599	0.600	5.8	40.0
73 Butylbenzylphthalate	1.004	0.769	0.010	23.4	40.0
74 3,3'-Dichlorobenzidine	0.466	0.375	0.010	19.7	40.0
75 Benzo[a]anthracene	1.197	1.169	0.800	2.3	25.0
77 Chrysene	1.018	1.103	0.700	8.4	25.0
78 bis(2-Ethylhexyl)phthalate	1.236	0.981	0.010	20.6	40.0
79 Di-n-octylphthalate	3.439	2.424	0.010	29.5	30.0
80 Benzo[b]fluoranthene	1.610	1.701	0.700	5.6	25.0
81 Benzo[k]fluoranthene	1.740	1.749	0.700	0.5	25.0
82 Benzo[a]pyrene	1.374	1.388	0.700	1.0	30.0
84 Indeno[1,2,3-cd]pyrene	1.635	1.372	0.500	16.1	40.0
85 Dibenz[a,h]anthracene	1.368	1.098	0.400	19.7	40.0
86 Benzo[g,h,i]perylene	1.334	1.152	0.500	13.7	40.0
\$ 3 2-Fluorophenol	1.582	1.400	0.600	11.5	25.0
\$ 4 Phenol-d5	1.984	1.540	0.800	22.4	25.0
\$ 61 2,4,6-Tribromophenol	0.139	0.137	0.010	1.4	40.0
\$ 23 Nitrobenzene-d5	0.418	0.317	0.200	24.0	25.0
\$ 41 2-Fluorobiphenyl	1.224	1.308	0.700	6.8	25.0
\$ 72 Terphenyl-d14	0.980	1.078	0.500	10.0	25.0
17 ortho-Cresol	1.400	1.402	0.700	0.2	40.0
20 meta,para-Cresol	1.565	1.194	0.600	23.7	25.0
96 Benzidine	0.028	0.010	0.010	63.3	100.0

SPL Houston Labs

Data file : /chem/h.i/h950515.b/h135cc1.d

Lab Smp Id:

Inj Date : 15-MAY-1995 15:26

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950515 STD050

Comment :

Method : /chem/h.i/h950515.b/hclpw.m

Meth Date : 15-May-1995 16:14 liping

Cal Date : 15-MAY-1995 15:26

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Quant Type: ISTD

Cal File: h135cc1.d

Continuing Calibration Sample

Compound Sublist: std.sub

Compounds	QUANT SIG				AMOUNTS	
	MASS	RT	EXP RT	REL RT	CAL-AMT	ON-COL
					( ng)	( ng)
-----	----	--	-----	-----	-----	-----
2 Pyridine	79.00	2.593	2.593	(0.579)	220395	50 30
5 Phenol	94.00	4.205	4.205	(0.939)	262040	50 40
6 Aniline	93.00	4.229	4.229	(0.944)	134017	50 15 (M)
7 bis(2-Chloroethyl) ether	93.00	4.252	4.252	(0.950)	325062	50 48 (M)
9 2-Chlorophenol	128.00	4.323	4.323	(0.966)	206652	50 46
10 1,3-Dichlorobenzene	146.00	4.442	4.442	(0.992)	230437	50 50
12 1,4-Dichlorobenzene	146.00	4.489	4.489	(1.003)	225465	50 52
13 Benzyl alcohol	108.00	4.703	4.703	(1.050)	37795	50 11 (M)
15 1,2-Dichlorobenzene	146.00	4.655	4.655	(1.040)	209883	50 55
16 2-Methylphenol	108.00	4.726	4.726	(1.056)	219343	50 51 (M)
18 bis(2-chloroisopropyl) ether	45.00	4.738	4.738	(1.058)	154308	50 16
19 4-Methylphenol	108.00	4.857	4.857	(1.085)	183663	50 38
21 N-Nitroso-di-n-propylamine	70.00	4.869	4.869	(1.087)	99160	50 26
22 Hexachloroethane	117.00	4.952	4.952	(1.106)	83104	50 43
24 Nitrobenzene	77.00	5.011	5.011	(0.883)	155624	50 37
25 Isophorone	82.00	5.236	5.236	(0.923)	316333	50 33
26 2-Nitrophenol	139.00	5.319	5.319	(0.937)	99398	50 48 (a)
27 2,4-Dimethylphenol	107.00	5.366	5.366	(0.946)	179744	50 47
28 Benzoic acid	122.00	5.473	5.473	(0.964)	83253	50 40 (a)
29 bis(2-Chloroethoxy) methane	93.00	5.437	5.437	(0.958)	191347	50 37
30 2,4-Dichlorophenol	162.00	5.556	5.556	(0.979)	148677	50 55
31 1,2,4-Trichlorobenzene	180.00	5.639	5.639	(0.994)	164164	50 60
33 Naphthalene	128.00	5.698	5.698	(1.004)	526201	50 54
34 4-Chloroaniline	127.00	5.757	5.757	(1.015)	160826	50 37
35 Hexachlorobutadiene	225.00	5.876	5.876	(1.036)	85082	50 65 (M)
36 4-Chloro-3-methylphenol	107.00	6.255	6.255	(1.102)	142684	50 48
37 2-Methylnaphthalene	142.00	6.374	6.374	(1.123)	332480	50 56
38 Hexachlorocyclopentadiene	237.00	6.611	6.611	(0.887)	89852	50 52
39 2,4,6-Trichlorophenol	196.00	6.694	6.694	(0.898)	93774	50 49

Compounds	QUANT SIG		RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
	MASS	----					CAL-AMT ( ng)	ON-COL ( ng)
-----	----	----	---	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00		6.741	6.741	(0.905)	111037	50	57
42 2-Chloronaphthalene	162.00		6.859	6.859	(0.920)	299778	50	55
43 2-Nitroaniline	65.00		6.990	6.990	(0.938)	72942	50	32(a)
44 Dimethylphthalate	163.00		7.203	7.203	(0.967)	343828	50	53
45 2,6-Dinitrotoluene	165.00		7.262	7.262	(0.975)	82312	50	56
46 Acenaphthylene	152.00		7.286	7.286	(0.978)	488353	50	54
47 3-Nitroaniline	138.00		7.405	7.405	(0.994)	79069	50	42(a)
49 Acenaphthene	153.00		7.476	7.476	(1.003)	279258	50	54
50 2,4-Dinitrophenol	184.00		7.511	7.511	(1.008)	37105	50	61
51 4-Nitrophenol	109.00		7.618	7.618	(1.022)	31673	50	55
52 Dibenzofuran	168.00		7.642	7.642	(1.025)	411992	50	58
53 2,4-Dinitrotoluene	165.00		7.665	7.665	(1.029)	107663	50	66
54 Diethylphthalate	149.00		7.914	7.914	(1.062)	332588	50	51
55 4-Chlorophenyl-phenylether	204.00		7.985	7.985	(1.072)	138978	50	60
56 Fluorene	166.00		7.997	7.997	(1.073)	280483	50	56
57 4-Nitroaniline	138.00		8.033	8.033	(1.078)	79202	50	45(a)
58 4,6-Dinitro-2-methylphenol	198.00		8.080	8.080	(0.903)	53979	50	56
59 n-Nitrosodiphenylamine	169.00		8.116	8.116	(0.907)	192595	50	47
60 1,2-Diphenylhydrazine	77.00		8.139	8.139	(0.910)	489281	50	30
62 4-Bromophenyl-phenylether	248.00		8.483	8.483	(0.948)	87768	50	54
63 Hexachlorobenzene	283.70		8.637	8.637	(0.966)	103518	50	57
64 Pentachlorophenol	265.50		8.827	8.827	(0.987)	57795	50	54
66 Phenanthrene	178.00		8.969	8.969	(1.003)	402608	50	51
67 Anthracene	178.00		9.016	9.016	(1.008)	395020	50	51
68 Carbazole	167.00		9.182	9.182	(1.026)	356477	50	47
69 Di-n-butylphthalate	149.00		9.573	9.573	(1.070)	493399	50	43
70 Fluoranthene	202.00		10.189	10.189	(1.139)	355753	50	53
71 Pyrene	202.00		10.414	10.414	(0.882)	351544	50	53
73 Butylbenzylphthalate	149.00		11.126	11.126	(0.942)	169089	50	38
74 3,3'-Dichlorobenzidine	252.00		11.765	11.765	(0.996)	82382	50	40
75 Benzo[a]anthracene	228.00		11.789	11.789	(0.998)	257054	50	49
77 Chrysene	228.00		11.848	11.848	(1.003)	242540	50	54
78 bis(2-Ethylhexyl)phthalate	149.00		11.872	11.872	(1.005)	215809	50	40
79 Di-n-octylphthalate	149.00		12.773	12.773	(0.909)	322823	50	35
80 Benzo[b]fluoranthene	252.00		13.413	13.413	(0.954)	226468	50	53
81 Benzo[k]fluoranthene	252.00		13.460	13.460	(0.958)	232877	50	50
82 Benzo[a]pyrene	252.00		13.958	13.958	(0.993)	184817	50	50
84 Indeno[1,2,3-cd]pyrene	276.00		15.996	15.996	(1.138)	182675	50	42
85 Dibenz[a,h]anthracene	278.00		16.032	16.032	(1.141)	146260	50	40
86 Benzo[g,h,i]perylene	276.00		16.553	16.553	(1.178)	153356	50	43
\$ 3 2-Fluorophenol	112.00		3.458	3.458	(0.772)	215241	50	44
\$ 4 Phenol-d5	99.00		4.193	4.193	(0.936)	236818	50	39
\$ 61 2,4,6-Tribromophenol	329.70		8.258	8.258	(0.923)	46377	50	49
\$ 23 Nitrobenzene-d5	82.00		4.999	4.999	(0.881)	166049	50	38
\$ 41 2-Fluorobiphenyl	172.00		6.765	6.765	(0.908)	324142	50	53
\$ 72 Terphenyl-d14	244.00		10.580	10.580	(0.896)	237121	50	55
* 11 1,4-Dichlorobenzene-d4	152.00		4.477	4.477	(1.000)	123023	40	
* 32 Naphthalene-d8	136.00		5.674	5.674	(1.000)	418440	40	
* 48 Acenaphthene-d10	164.00		7.452	7.452	(1.000)	198324	40	

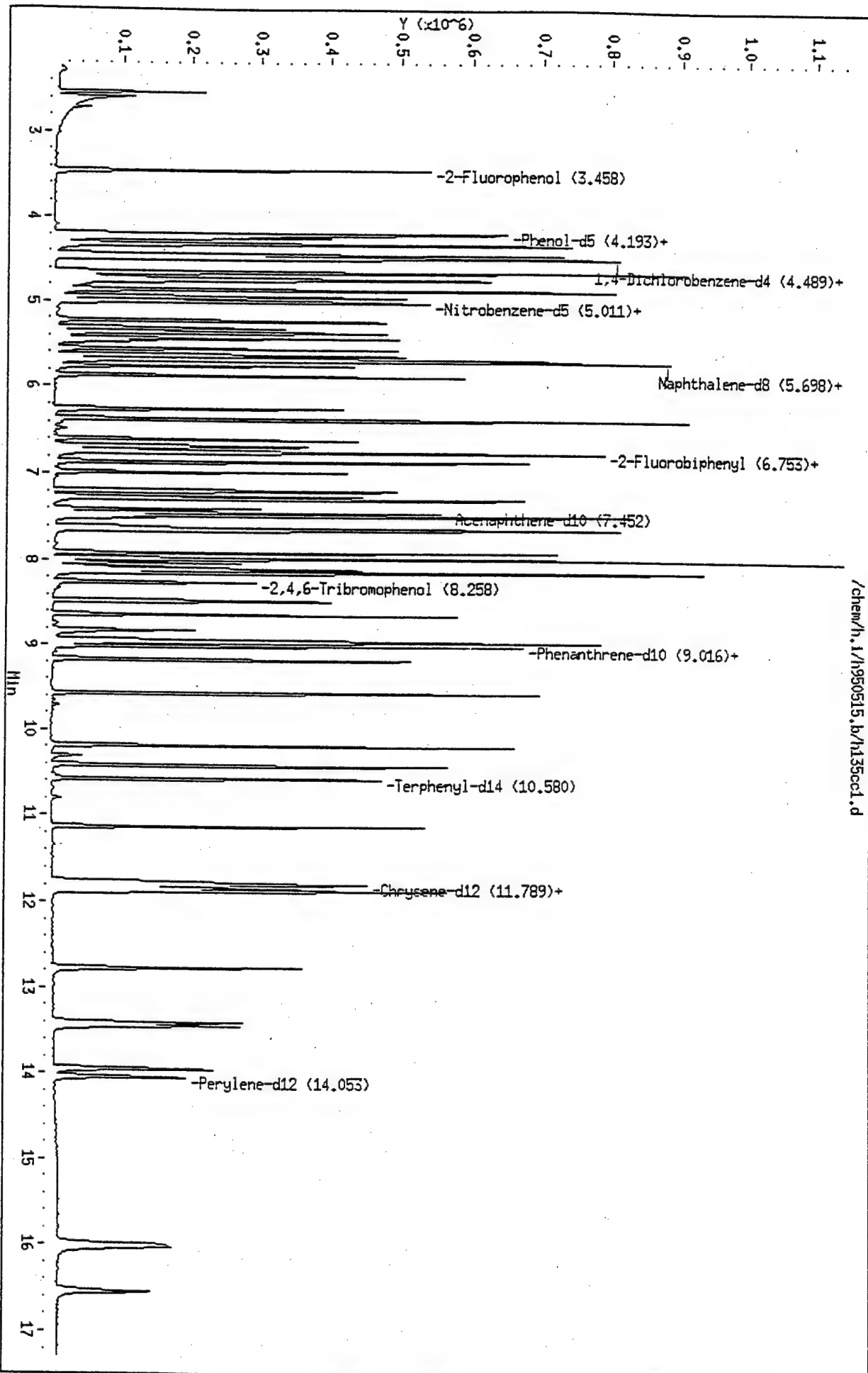
Compounds	QUANT SIG					RESPONSE	AMOUNTS	
	MASS	RT	EXP RT	REL RT	RT		CAL-AMT	ON-COL
							( ng)	( ng)
-----	----	--	-----	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.945	8.945	(1.000)		270386	40	
* 76 Chrysene-d12	240.00	11.813	11.813	(1.000)		175926	40	
* 83 Perylene-d12	264.00	14.053	14.053	(1.000)		106536	40	
17 ortho-Cresol	108.00	4.726	4.726	(1.056)		215586	50	50 (M)
20 meta,para-Cresol	108.00	4.857	4.857	(1.085)		183663	50	38
96 Benzidine	184.00	10.794	10.794	(0.914)		2253	50	18 (a)

QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation (BLOQ).
- M - Compound response manually integrated.

Data File: /chem/h.1/h950515.b/h135cc1.d  
Date: 15-MAY-95 15:26  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h136ic1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 16-MAY-1995 11:52  
Init. Calibration Date(s): 05/16/95 05/16/95  
Init. Calibration Times: 11:52 13:52  
Method File: /chem/h.i/h950516.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
2 Pyridine	0.971	1.136	0.010	17.0	50.0
5 Phenol	1.340	1.591	0.800	18.8	25.0
6 Aniline	1.212	1.293	0.010	6.6	100.0
7 bis(2-Chloroethyl)ether	1.242	1.424	0.700	14.6	25.0
9 2-Chlorophenol	1.239	1.356	0.800	9.4	25.0
10 1,3-Dichlorobenzene	1.435	1.568	0.600	9.2	25.0
12 1,4-Dichlorobenzene	1.413	1.504	0.500	6.5	25.0
13 Benzyl alcöhol	0.217	0.235	0.010	8.2	100.0
15 1,2-Dichlorobenzene	1.261	1.403	0.400	11.2	25.0
16 2-Methylphenol	1.236	1.341	0.700	8.5	25.0
18 bis(2-chloroisopropyl)ether	0.747	0.846	0.010	13.1	100.0
19 4-Methylphenol	1.121	1.302	0.600	16.2	25.0
21 N-Nitroso-di-n-propylamine	0.593	0.624	0.500	5.2	25.0
22 Hexachloroethane	0.530	0.546	0.300	3.1	25.0
24 Nitrobenzene	0.296	0.311	0.200	5.3	25.0
25 Isophorone	0.556	0.588	0.400	5.8	50.0
26 2-Nitrophenol	0.209	0.219	0.100	4.7	25.0
27 2,4-Dimethylphenol	0.371	0.367	0.200	1.0	25.0
28 Benzoic acid	0.183	0.164	0.010	10.4	40.0
29 bis(2-Chloroethoxy)methane	0.296	0.330	0.300	11.4	25.0
30 2,4-Dichlorophenol	0.290	0.299	0.200	3.2	25.0
31 1,2,4-Trichlorobenzene	0.316	0.336	0.200	6.3	25.0
33 Naphthalene	0.911	1.002	0.700	10.0	25.0
34 4-Chloroaniline	0.334	0.331	0.010	0.9	40.0
35 Hexachlorobutadiene	0.200	0.196	0.010	2.3	40.0
36 4-Chloro-3-methylphenol	0.297	0.291	0.200	2.2	25.0
37 2-Methylnaphthalene	0.615	0.644	0.400	4.8	25.0
38 Hexachlorocyclopentadiene	0.411	0.397	0.010	3.4	40.0
39 2,4,6-Trichlorophenol	0.363	0.383	0.200	5.6	25.0
40 2,4,5-Trichlorophenol	0.459	0.476	0.200	3.7	25.0
42 2-Chloronaphthalene	1.107	1.194	0.800	7.9	25.0
43 2-Nitroaniline	0.278	0.281	0.010	1.3	40.0
44 Dimethylphthalate	1.331	1.434	0.010	7.7	40.0
45 2,6-Dinitrotoluene	0.323	0.336	0.200	4.1	25.0
46 Acenaphthylene	1.754	1.910	1.300	8.9	25.0
47 3-Nitroaniline	0.304	0.311	0.010	2.3	40.0
49 Acenaphthene	1.034	1.108	0.800	7.1	25.0
50 2,4-Dinitrophenol	0.155	0.141	0.010	8.6	40.0
51 4-Nitrophenol	0.156	0.141	0.010	9.9	40.0
52 Dibenzofuran	1.496	1.648	0.800	10.1	25.0

SPL Houston Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h136ic1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 16-MAY-1995 11:52  
Init. Calibration Date(s): 05/16/95 05/16/95  
Init. Calibration Times: 11:52 13:52  
Method File: /chem/h.i/h950516.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
53 2,4-Dinitrotoluene	0.400	0.426	0.200	6.5	40.0
54 Diethylphthalate	1.358	1.414	0.010	4.1	40.0
55 4-Chlorophenyl-phenylether	0.543	0.588	0.400	8.2	25.0
56 Fluorene	1.006	1.094	0.900	8.7	25.0
57 4-Nitroaniline	0.278	0.287	0.010	3.5	40.0
58 4,6-Dinitro-2-methylphenol	0.166	0.163	0.010	1.6	50.0
59 n-Nitrosodiphenylamine	0.559	0.592	0.010	6.0	40.0
60 1,2-Diphenylhydrazine	1.412	1.438	0.010	1.8	40.0
62 4-Bromophenyl-phenylether	0.276	0.286	0.100	3.4	25.0
63 Hexachlorobenzene	0.339	0.351	0.100	3.6	25.0
64 Pentachlorophenol	0.188	0.188	0.050	0.2	25.0
66 Phenanthrene	1.109	1.175	0.700	5.9	25.0
67 Anthracene	1.092	1.201	0.700	9.9	25.0
68 Carbazole	0.923	0.979	0.010	6.0	40.0
69 Di-n-butylphthalate	1.431	1.517	0.010	6.0	40.0
70 Fluoranthene	0.968	0.992	0.600	2.4	25.0
71 Pyrene	1.487	1.589	0.600	6.9	25.0
73 Butylbenzylphthalate	0.776	0.802	0.010	3.3	40.0
74 3,3'-Dichlorobenzidine	0.426	0.426	0.010	0.1	40.0
75 Benzo[a]anthracene	1.160	1.201	0.800	3.5	25.0
77 Chrysene	1.058	1.097	0.700	3.7	25.0
78 bis(2-Ethylhexyl)phthalate	0.960	1.030	0.010	7.2	40.0
79 Di-n-octylphthalate	2.387	2.507	0.010	5.0	40.0
80 Benzo[b]fluoranthene	1.654	1.600	0.700	3.3	25.0
81 Benzo[k]fluoranthene	1.732	2.049	0.700	18.3	25.0
82 Benzo[a]pyrene	1.352	1.385	0.700	2.4	25.0
84 Indeno[1,2,3-cd]pyrene	1.332	1.302	0.500	2.3	25.0
85 Dibenz[a,h]anthracene	1.081	1.041	0.400	3.6	25.0
86 Benzo[g,h,i]perylene	1.071	1.028	0.500	4.0	25.0
\$ 3 2-Fluorophenol	1.229	1.356	0.600	10.3	25.0
\$ 4 Phenol-d5	1.265	1.455	0.800	15.1	25.0
\$ 61 2,4,6-Tribromophenol	0.164	0.162	0.010	1.3	40.0
\$ 23 Nitrobenzene-d5	0.316	0.327	0.200	3.4	25.0
\$ 41 2-Fluorobiphenyl	1.194	1.316	0.700	10.2	25.0
\$ 72 Terphenyl-d14	1.063	1.111	0.500	4.5	25.0
17 ortho-Cresol	1.236	1.341	0.700	8.5	25.0
20 meta,para-Cresol	1.121	1.302	0.600	16.2	25.0
96 Benzidine	0.014	0.012	0.010	14.9	100.0

Data File: /chem/h.i/h950516.b/h136ic1.d  
Report Date: 16-May-1995 15:13

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950516.b/h136ic1.d

Lab Smp Id:

Inj Date : 16-MAY-1995 11:52

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950516 STD050

Comment :

Method : /chem/h.i/h950516.b/hclpw.m

Meth Date : 16-May-1995 15:10 liping

Quant Type: ISTD

Cal Date : 16-MAY-1995 11:52

Cal File: h136ic1.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.546	2.546	(0.572)	146575	50	25
5 Phenol	94.00	4.170	4.170	(0.936)	205267	50	25
6 Aniline	93.00	4.193	4.193	(0.941)	166726	50	25
7 bis(2-Chloroethyl)ether	93.00	4.217	4.217	(0.947)	183611	50	25
9 2-Chlorophenol	128.00	4.300	4.300	(0.965)	174942	50	25
10 1,3-Dichlorobenzene	146.00	4.418	4.418	(0.992)	202199	50	25
12 1,4-Dichlorobenzene	146.00	4.466	4.466	(1.003)	194044	50	25
13 Benzyl alcohol	108.00	4.679	4.679	(1.051)	30275	50	25 (M)
15 1,2-Dichlorobenzene	146.00	4.632	4.632	(1.040)	180932	50	25
16 2-Methylphenol	108.00	4.703	4.703	(1.056)	172933	50	25
18 bis(2-chloroisopropyl)ether	45.00	4.715	4.715	(1.059)	109058	50	25
19 4-Methylphenol	108.00	4.833	4.833	(1.085)	167905	50	25
21 N-Nitroso-di-n-propylamine	70.00	4.845	4.845	(1.088)	80476	50	25
22 Hexachloroethane	117.00	4.916	4.916	(1.104)	70413	50	25
24 Nitrobenzene	77.00	4.987	4.987	(0.883)	135316	50	25
25 Isophorone	82.00	5.201	5.201	(0.920)	255738	50	25
26 2-Nitrophenol	139.00	5.295	5.295	(0.937)	95121	50	25
27 2,4-Dimethylphenol	107.00	5.331	5.331	(0.943)	159742	50	25
28 Benzoic acid	122.00	5.449	5.449	(0.964)	71466	50	25
29 bis(2-Chloroethoxy)methane	93.00	5.414	5.414	(0.958)	143361	50	25
30 2,4-Dichlorophenol	162.00	5.532	5.532	(0.979)	130189	50	25
31 1,2,4-Trichlorobenzene	180.00	5.603	5.603	(0.992)	146082	50	25
33 Naphthalene	128.00	5.675	5.675	(1.004)	436051	50	25
34 4-Chloroaniline	127.00	5.734	5.734	(1.015)	144131	50	25
35 Hexachlorobutadiene	225.00	5.852	5.852	(1.036)	85151	50	25
36 4-Chloro-3-methylphenol	107.00	6.232	6.232	(1.103)	126545	50	25
37 2-Methylnaphthalene	142.00	6.350	6.350	(1.124)	280364	50	25
38 Hexachlorocyclopentadiene	237.00	6.587	6.587	(0.888)	84983	50	25
39 2,4,6-Trichlorophenol	196.00	6.658	6.658	(0.898)	82150	50	25



Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.717	6.717	(0.906)	102052	50	25
42 2-Chloronaphthalene	162.00	6.836	6.836	(0.922)	255849	50	25
43 2-Nitroaniline	65.00	6.966	6.966	(0.939)	60275	50	25
44 Dimethylphthalate	163.00	7.168	7.168	(0.966)	307292	50	25
45 2,6-Dinitrotoluene	165.00	7.239	7.239	(0.976)	72022	50	25
46 Acenaphthylene	152.00	7.263	7.263	(0.979)	409270	50	25
47 3-Nitroaniline	138.00	7.381	7.381	(0.995)	66646	50	25
49 Acenaphthene	153.00	7.452	7.452	(1.005)	237386	50	25
50 2,4-Dinitrophenol	184.00	7.488	7.488	(1.010)	30259	50	25
51 4-Nitrophenol	109.00	7.582	7.582	(1.022)	30138	50	25
52 Dibenzofuran	168.00	7.618	7.618	(1.027)	353082	50	25
53 2,4-Dinitrotoluene	165.00	7.630	7.630	(1.029)	91273	50	25
54 Diethylphthalate	149.00	7.891	7.891	(1.064)	303006	50	25
55 4-Chlorophenyl-phenylether	204.00	7.962	7.962	(1.073)	125960	50	25
56 Fluorene	166.00	7.962	7.962	(1.073)	234490	50	25
57 4-Nitroaniline	138.00	8.009	8.009	(1.080)	61548	50	25
58 4,6-Dinitro-2-methylphenol	198.00	8.056	8.056	(0.903)	45458	50	25
59 n-Nitrosodiphenylamine	169.00	8.080	8.080	(0.906)	164956	50	25
60 1,2-Diphenylhydrazine	77.00	8.116	8.116	(0.910)	400382	50	25
62 4-Bromophenyl-phenylether	248.00	8.448	8.448	(0.947)	79542	50	25
63 Hexachlorobenzene	283.70	8.613	8.613	(0.965)	97763	50	25
64 Pentachlorophenol	265.50	8.791	8.791	(0.985)	52335	50	25
66 Phenanthrene	178.00	8.945	8.945	(1.003)	327111	50	25
67 Anthracene	178.00	8.981	8.981	(1.007)	334435	50	25
68 Carbazole	167.00	9.147	9.147	(1.025)	272581	50	25
69 Di-n-butylphthalate	149.00	9.538	9.538	(1.069)	422572	50	25
70 Fluoranthene	202.00	10.166	10.166	(1.139)	276166	50	25
71 Pyrene	202.00	10.391	10.391	(0.882)	273639	50	25
73 Butylbenzylphthalate	149.00	11.090	11.090	(0.942)	138212	50	25
74 3,3'-Dichlorobenzidine	252.00	11.718	11.718	(0.995)	73287	50	25
75 Benzo[a]anthracene	228.00	11.754	11.754	(0.998)	206785	50	25
77 Chrysene	228.00	11.801	11.801	(1.002)	188920	50	25
78 bis(2-Ethylhexyl)phthalate	149.00	11.837	11.837	(1.005)	177351	50	25
79 Di-n-octylphthalate	149.00	12.725	12.725	(0.909)	261018	50	25
80 Benzo[b]fluoranthene	252.00	13.365	13.365	(0.955)	166573	50	25
81 Benzo[k]fluoranthene	252.00	13.401	13.401	(0.958)	213325	50	25
82 Benzo[a]pyrene	252.00	13.899	13.899	(0.993)	144149	50	25
84 Indeno[1,2,3-cd]pyrene	276.00	15.925	15.925	(1.138)	135554	50	25
85 Dibenz[a,h]anthracene	278.00	15.949	15.949	(1.140)	108418	50	25
86 Benzo[g,h,i]perylene	276.00	16.458	16.458	(1.176)	107050	50	25
\$ 3 2-Fluorophenol	112.00	3.423	3.423	(0.769)	174833	50	25
\$ 4 Phenol-d5	99.00	4.158	4.158	(0.933)	187670	50	25
\$ 61 2,4,6-Tribromophenol	329.70	8.234	8.234	(0.923)	44987	50	25
\$ 23 Nitrobenzene-d5	82.00	4.964	4.964	(0.878)	142323	50	25
\$ 41 2-Fluorobiphenyl	172.00	6.729	6.729	(0.907)	281986	50	25
\$ 72 Terphenyl-d14	244.00	10.545	10.545	(0.895)	191375	50	25
* 11 1,4-Dichlorobenzene-d4	152.00	4.454	4.454	(1.000)	103183	40	
* 32 Naphthalene-d8	136.00	5.651	5.651	(1.000)	348029	40	
* 48 Acenaphthene-d10	164.00	7.417	7.417	(1.000)	171424	40	

Compounds	QUANT SIG MASS	RT	FXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.922	8.922	(1.000)	222794	40	
* 76 Chrysene-d12	240.00	11.777	11.777	(1.000)	137788	40	
* 83 Perylene-d12	264.00	13.993	13.993	(1.000)	83290	40	
17 ortho-Cresol	108.00	4.703	4.703	(1.056)	172933	50	25
20 meta,para-Cresol	108.00	4.833	4.833	(1.085)	167905	50	25
96 Benzidine	184.00	10.770	10.770	(0.914)	2005	50	25

QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h136ic1.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950516.b/hclpw.m  
 Misc Info: 950516 STD050

Calibration Date: 05/16/95  
 Calibration Time: 1152

Level: LOW  
 Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	103183	0.00
32 Naphthalene-d8	348029	174014	696058	348029	0.00
48 Acenaphthene-d10	171424	85712	342848	171424	0.00
65 Phenanthrene-d10	222794	111397	445588	222794	0.00
76 Chrysene-d12	137788	68894	275576	137788	0.00
83 Perylene-d12	83290	41645	166580	83290	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.45	0.00
32 Naphthalene-d8	5.65	5.15	6.15	5.65	0.00
48 Acenaphthene-d10	7.42	6.92	7.92	7.42	0.00
65 Phenanthrene-d10	8.92	8.42	9.42	8.92	0.00
76 Chrysene-d12	11.78	11.28	12.28	11.78	0.00
83 Perylene-d12	13.99	13.49	14.49	13.99	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950516.b/h1361cl.d

Date : 16-MAY-95 11:52

Client ID:

Sample Info: STD-8270M/1X

Volume Injected (ul): 2.0

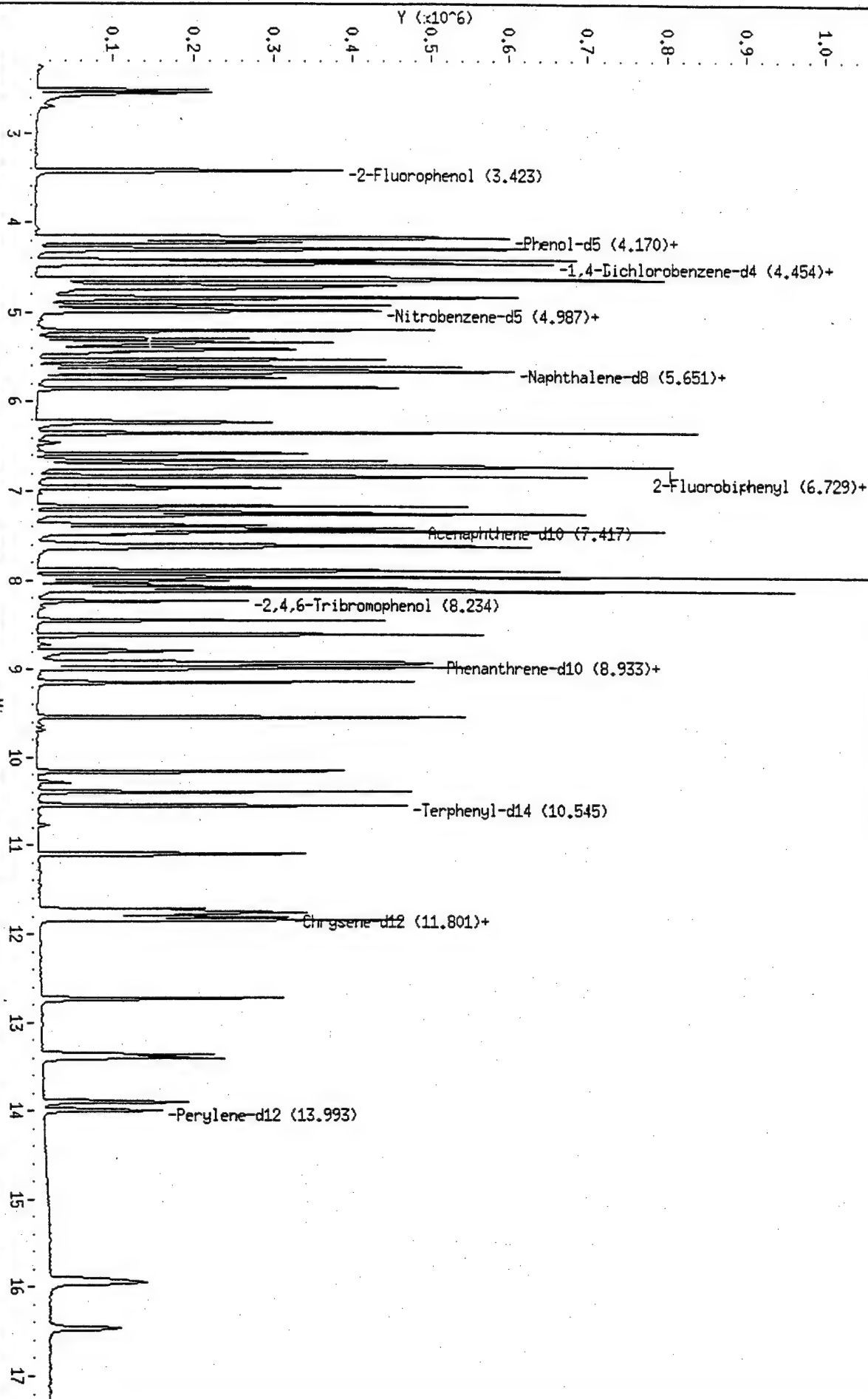
Column phase:

Instrument: h.1

Operator: LH

Column diameter: 0.25

/chem/h.1/h950516.b/h1361cl.d



SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h136s13.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950516.b/hclps.m  
Misc Info: E132S1/H132B02/H136IC1

Calibration Date: 05/16/95  
Calibration Time: 1152  
Level: LOW  
Sample Type: SOIL

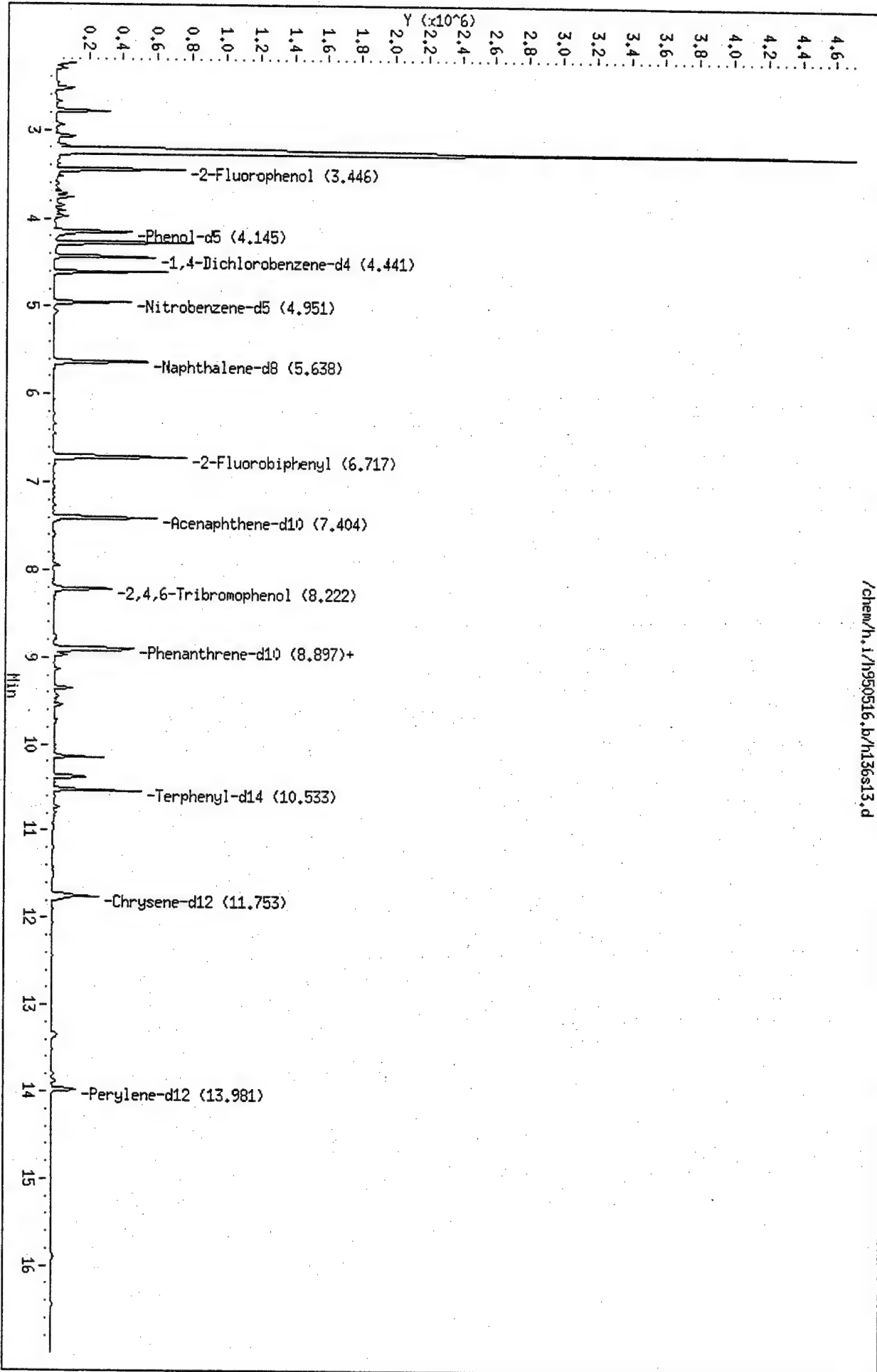
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	103183	51592	206366	137962	33.71
32 Naphthalene-d8	348029	174014	696058	501891	44.21
48 Acenaphthene-d10	171424	85712	342848	234319	36.69
65 Phenanthrene-d10	222794	111397	445588	283903	27.43
76 Chrysene-d12	137788	68894	275576	153893	11.69
83 Perylene-d12	83290	41645	166580	97228	16.73

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.45	3.95	4.95	4.44	-0.28
32 Naphthalene-d8	5.65	5.15	6.15	5.64	-0.22
48 Acenaphthene-d10	7.42	6.92	7.92	7.40	-0.17
65 Phenanthrene-d10	8.92	8.42	9.42	8.90	-0.27
76 Chrysene-d12	11.78	11.28	12.28	11.75	-0.21
83 Perylene-d12	13.99	13.49	14.49	13.98	-0.09

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.i/h950516.b/h136s13.d  
Date: 16-MAY-1995 19:57  
Client ID:  
Sample Info: 9505164-08B-82705/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



## ICP Spectroscopy Method 6010 Quality Control Report



Matrix: Water

Units: mg/L

Analyst: DQ

Date: 050995 Time: 0855 File Name: 050995DQ

Checked: *PR 5/10/95*

## Laboratory Control Sample

Element	Mth. Blank	True Value	Result	% Recovery	Lower Limit	Upper Limit
Silver	ND	2.00	1.937	97	1.60	2.40
Aluminum						
Arsenic	ND	2.00	2.070	103	1.60	2.40
Barium	ND	2.00	1.984	99	1.60	2.40
Beryllium	ND	2.00	2.066	103	1.60	2.40
Calcium						
Cadmium	ND	2.00	2.006	100	1.60	2.40
Cobalt	ND	2.00	2.044	102	1.60	2.40
Chromium	ND	2.00	2.045	102	1.60	2.40
Copper						
Iron						
Potassium						
Magnesium						
Manganese						
Sodium						
Nickel	ND	2.00	2.075	104	1.60	2.40
Lead	ND	2.00	2.084	104	1.60	2.40
Antimony	ND	2.00	2.093	105	1.60	2.40
Selenium	ND	2.00	1.988	99	1.60	2.40
Thallium						
Vanadium	ND	2.00	1.934	97	1.60	2.40
Zinc	ND	2.00	1.985	99	1.60	2.40

## Work Orders in Batch

Work Order	Fractions
95-04-362	30D
95-05-160	03A
95-05-164	11D, 11E
95-04-363	26D

## Matrix Spike - Spike Duplicate Results

Work Order Spiked: 95-04-362 30D

Element	Sample Result	Spike Added	Matrix Spike Result	Matrix Spike Recovery	Matrix Spike Duplicate Result	Matrix Spike Duplicate Recovery	QC Limits % Recovery		Spike RPD %	QC Limits %
Silver	ND	1.0	0.946	95	0.959	96	80	120	1.4	20.0
Aluminum										
Arsenic	ND	2.0	2.043	102	2.086	104	80	120	2.1	20.0
Barium	ND	2.0	1.925	96	1.917	96	80	120	0.4	20.0
Beryllium	ND	1.0	1.057	106	1.026	103	80	120	3.0	20.0
Calcium										
Cadmium	ND	1.0	1.000	100	1.015	101	80	120	1.5	20.0
Cobalt	ND	1.0	1.024	102	1.036	104	80	120	1.2	20.0
Chromium	ND	1.0	1.017	102	1.022	102	80	120	0.5	20.0
Copper										
Iron										
Potassium										
Magnesium										
Manganese										
Sodium										
Nickel	ND	1.0	1.051	105	1.059	106	80	120	0.8	20.0
Lead	ND	1.0	1.049	105	1.067	107	80	120	1.7	20.0
Antimony	ND	1.0	1.033	103	1.072	107	80	120	3.7	20.0
Selenium	ND	2.0	1.973	99	1.935	97	80	120	1.9	20.0
Thallium										
Vanadium	ND	1.0	0.963	96	0.964	96	80	120	0.1	20.0
Zinc	0.159	1.0	1.061	90	1.036	88	80	120	2.8	20.0

*Idelis Williams*  
 Idelis Williams, QC Officer

*5/10/95*

## ICPQAQC.RC REV.4/94

Units: mg/L

Matrix: ☒ Soil

☐ Water

☐ Leachate

PL Sample #'s In Batch:

950516A-1C-100, 120, 130			
9505209-1C-50			

SPL QA/QC Sample ID: #1 9505164-10C #2 \_\_\_\_\_ #3 \_\_\_\_\_

[illegible]Flags ☐ MS or MSD Out of QA Limits ( $\pm 25\%$ )

☐ Spike RPD Out of QA Limits ( $\pm 20\%$ )

☐ See Case Narrative

☐ Within Soil LCS Limits

Analyst Jam. Martinez

Supervisor Approval [Signature] Date 5-17-95

QA/QC Approval [Signature]  
Idelis Williams, QC Officer

Date 5-17-95





# SPL QUALITY CONTROL SUMMARY

Atomic Absorption Analysis

Rev. 4/94

Element: CR  
Test Code: CRSG  
Method: P3050G  
Instrument: B

Date: 5/18/95  
Time: 08:09  
File #: 0518A

Analyst: WFC  
Matrix: Soil ☒ Water ☐

Leachate: ☐ Water ☐ Soil ☐  
☐ Oil ☐ Other

Units: mg/kg

Sample #'s in Batch

05164-1c	10c, 12c, 13c								
05209-1c-5c									

Blank and Check Standard				Matrix Spike and Spike Duplicate Data					
Sample ID	Method	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec.
*05164-10c	MB	115.0	91.3%	12.1	20.0	22.9	23.3	54.0%	56.9%
LCS 113	MB	167.0	61.1%	11A	20.0	—	—	—	—

• FLAGS •

• = Values Outside QC Range

Analyst

Walter F. Gould

Date

5/18/95

MS or MSD out of QA/QC Limits (% Rec. 75-125)

RPD out of QA/QC Limits (20 %)

Soil LCS % Rec. Range

Sample used for QA/QC only

Approved By

Dee J. J.

Date

5-18-95

Idells Williams, QC Officer

Date

5/18/95

See Case Narrative



# SPL QUALITY CONTROL SUMMARY

Rev. 4/91

Atomic Absorption Analysis

Element: Pb

Date: 5/15/95

Analyst: WFC

Units: mg/kg

Test Code: PB5G

Time: 10:36

Matrix: WFC

Water ☐

Method: P3050G

File #: 0515A

Leachate: ☐ Water ☐ Soil ☐

Instrument: B

☐ Oil

☐ Other

Sample #'s in Batch

044625-3A-	SA, 10A		
04702-2A-	4A		
04800-1B-	13B, 14B, 15B		
05164-1C-	10C, 12C-13C WFC		
05332-1A-	5A		

Blank and Check Standard				Matrix Spike and Spike Duplicate Data						
Sample ID	Method	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec	% RPD
044625-4A MB	Blank	52.4	82.8	30.6	50.0	68.9	68.4	76.6	75.6	1
04800-13B MB		52.4	82.8	33.0	50.0	83.5	83.2	101.0	100.4	1
05164-10C MB		52.4	84.4	24.6	50.0	64.7	65.2	80.2	81.2	1
05332-2A MB		52.4	84.4	35.0	50.0	64.0	64.4	58.0	58.8	1

• FLAGS •

• = Values Outside QC Range

MS or MSD out of QA/QC Limits (% Rec. 75-125)

RPD out of QA/QC Limits (20 %)

Soil LCS % Rec. Range 53.1% - 142.8%

Sample used for QA/QC only

Analyst

Wally F. Saunders Date 5/15/95

Approved By

Dee J. Miller Date 5-15-95

QC Officer

Dee J. Miller Date 5-16-95





WETDUPQA.RC Rev. 4/94

## Wet Chemistry QA/QC Validation Report

Test Name: MOISTURETest Code: MC18EDDate: 5/11/95Analyst: CA/STMethod: CLDTime: 8:50 AMMatrix ☐ Liquid ☒ Soil ☐ Other# of Samples in Batch: 51Reporting Units: % Moisture

PL Sample #'s in Batch:

9504425-3A → 57	10A	9505104-1B → 10B
9504702-2A → 4A		9505175-10A → 19A
9505300-1B		9505332-11A → 51A
9505344-2B → 4B		9504908-11A → 15A

Standards	Actual Concentration	Theoretical Concentration	Percent Recovery	QC Limits (**) (Mandatory)	
				Upper Limit	Lower Limit
Blank					
Check Standard 1					
Check Standard 2					
Check Standard 3					
OS (Outside Source)					

## DUPLICATES

QA/QC Duplicate SPL Sample ID	Sample Result <1>	Sample Result <2>	Relative Percent Difference	QC LIMITS (**) (Advisory)	
				Relative Percent Difference	Max.
9504702-4A	17	17	0	23.0	
9505300-1B	18	18	0		
9505344-2B	12	12	0		
9505104-6B	10	9	10.5		
9505175-14A	11	14	13.5		
9505332-5A	25	26	3.9		

Relative Percent Difference (RPD) Calculation:

$$RPD = \frac{<1> - <2>}{(|<1> + <2>) \times 0.5} \times 100$$

(\*\*) = Source: SPL Houston Historical Data

\* = Indicates Value Outside QA/QC Range

Reviewed By: [Signature] Date: 5/11/95Approved By: [Signature]Date: 5/11/95

Idelis Williams, QC Officer

Date: 5/11/95



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-01

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/09/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-002-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 11:30:00  
DATE RECEIVED: 05/19/95

PARAMETER	ANALYTICAL DATA			UNITS
	RESULTS	MDL*		
Benzene	ND	1		ug/L
Bromobenzene	ND	1		ug/L
Bromochloromethane	ND	1		ug/L
Bromodichloromethane	ND	1		ug/L
Bromoform	ND	1		ug/L
Bromomethane	ND	2		ug/L
n-Butylbenzene	ND	1		ug/L
sec-Butylbenzene	ND	1		ug/L
tert-Butylbenzene	ND	1		ug/L
Carbon tetrachloride	ND	1		ug/L
Chlorobenzene	ND	1		ug/L
Chlorodibromomethane	ND	1		ug/L
Chloroethane	ND	4		ug/L
Chloroform	ND	1		ug/L
Chloromethane	ND	1		ug/L
2-Chlorotoluene	ND	1		ug/L
4-Chlorotoluene	ND	1		ug/L
1,2-Dibromo-3-chloropropane	ND	1		ug/L
1,2-Dibromoethane	ND	1		ug/L
Dibromomethane	ND	1		ug/L
1,2-Dichlorobenzene	ND	1		ug/L
1,3-Dichlorobenzene	ND	1		ug/L
1,4-Dichlorobenzene	ND	1		ug/L
Dichlorodifluoromethane	ND	1		ug/L
1,1-Dichloroethane	ND	1		ug/L
1,2-Dichloroethane	ND	1		ug/L
1,1-Dichloroethene	ND	1		ug/L
1,2-Dichloropropane	ND	1		ug/L
1,3-Dichloropropane	ND	1		ug/L
2,2-Dichloropropane	ND	1		ug/L
1,1-Dichloropropene	ND	1		ug/L
Ethylbenzene	ND	1		ug/L
Hexachlorobutadiene	ND	1		ug/L
Isopropylbenzene	ND	1		ug/L
p-Isopropyltoluene	ND	1		ug/L
Methylene chloride	ND	1		ug/L
Naphthalene	ND	1		ug/L
n-Propylbenzene	ND	1		ug/L

METHOD: 8260 Water, Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-01

Operational Tech

SAMPLE ID: 026-002-MW-GW1

ANALYTICAL DATA (continued)				
PARAMETER	RESULTS	MDL*	UNITS	
Styrene	ND	1	ug/L	
1,1,1,2-Tetrachloroethane	ND	1	ug/L	
1,1,2,2-Tetrachloroethane	ND	1	ug/L	
Tetrachloroethene	ND	1	ug/L	
Toluene	ND	1	ug/L	
1,2,3-Trichlorobenzene	ND	1	ug/L	
1,2,4-Trichlorobenzene	ND	1	ug/L	
1,1,1-Trichloroethane	ND	1	ug/L	
1,1,2-Trichloroethane	ND	1	ug/L	
Trichloroethene	ND	1	ug/L	
Trichlorofluoromethane	ND	1	ug/L	
1,2,3-Trichloropropane	ND	1	ug/L	
1,2,4-Trimethylbenzene	ND	1	ug/L	
1,3,5-Trimethylbenzene	ND	1	ug/L	
Vinyl chloride	ND	1	ug/L	
Xylenes (total)	ND	1	ug/L	
1,2-Dichloroethene (total)	ND	1	ug/L	

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50	98	76	114
Toluene-d8	50	98	88	110
4-Bromofluorobenzene	50	96	86	115

ANALYZED BY: JC

DATE/TIME: 05/25/95 01:22:00

METHOD: 8260 Water, Volatile Organics

NOTES: \* - Method Detection Limit

NA - Not Analyzed

ND - Not Detected

D - Surr. diluted out.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505714-01

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-002-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 11:30:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA				
PARAMETER	RESULTS	PQL*	UNITS	
Acenaphthene	ND	5	ug/L	
Acenaphthylene	ND	5	ug/L	
Aniline	ND	5	ug/L	
Anthracene	ND	5	ug/L	
Benzo(a)Anthracene	ND	5	ug/L	
Benzo(b)Fluoranthene	ND	5	ug/L	
Benzo(k)Fluoranthene	ND	5	ug/L	
Benzo(a)Pyrene	ND	5	ug/L	
Benzoic Acid	ND	25	ug/L	
Benzo(g,h,i)Perylene	ND	5	ug/L	
Benzyl alcohol	ND	5	ug/L	
4-Bromophenylphenyl ether	ND	5	ug/L	
Butylbenzylphthalate	ND	5	ug/L	
di-n-Butyl phthalate	ND	5	ug/L	
Carbazole	ND	5	ug/L	
4-Chloroaniline	ND	5	ug/L	
bis(2-Chloroethoxy)Methane	ND	5	ug/L	
bis(2-Chloroethyl)Ether	ND	5	ug/L	
bis(2-Chloroisopropyl)Ether	ND	5	ug/L	
4-Chloro-3-Methylphenol	ND	5	ug/L	
2-Chloronaphthalene	ND	5	ug/L	
2-Chlorophenol	ND	5	ug/L	
4-Chlorophenylphenyl ether	ND	5	ug/L	
Chrysene	ND	5	ug/L	
Dibenz(a,h)Anthracene	ND	5	ug/L	
Dibenzofuran	ND	5	ug/L	
1,2-Dichlorobenzene	ND	5	ug/L	
1,3-Dichlorobenzene	ND	5	ug/L	
1,4-Dichlorobenzene	ND	5	ug/L	
3,3'-Dichlorobenzidine	ND	5	ug/L	
2,4-Dichlorophenol	ND	5	ug/L	
Diethylphthalate	ND	5	ug/L	
2,4-Dimethylphenol	ND	5	ug/L	
Dimethyl Phthalate	ND	5	ug/L	
4,6-Dinitro-2-Methylphenol	ND	25	ug/L	
2,4-Dinitrophenol	ND	25	ug/L	
2,4-Dinitrotoluene	ND	5	ug/L	
2,6-Dinitrotoluene	ND	5	ug/L	

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-01

Operational Tech

SAMPLE ID: 026-002-MW-GW1

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-01

Operational Tech

SAMPLE ID: 026-002-MW-GW1

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	94	35	114
2-Fluorobiphenyl	50 ug/L	84	43	116
Terphenyl-d14	50 ug/L	72	33	141
Phenol-d5	75 ug/L	81	10	110
2-Fluorophenol	75 ug/L	74	21	110
2,4,6-Tribromophenol	75 ug/L	90	10	123

ANALYZED BY: LH

DATE/TIME: 06/01/95 11:04:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Data File: /chem/1.i/1950524.b/1144s11.d  
Report Date: 25-May-1995 07:01

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950524.b/1144s11.d

Lab Smp Id:

Inj Date : 25-MAY-1995 01:22

Operator : JC

Inst ID: 1.i

Smp Info : 9505714-01A-8260W/1X

Misc Info : L144W2/L144B03/L144CW3

Comment :

Method : /chem/1.i/1950524.b/18260w.m

Meth Date : 24-May-1995 20:31 jimmy

Quant Type: ISTD

Cal Date : 24-MAY-1995 20:04

Cal File: 1144cw3.d

Als bottle: 21

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	----	--	-----	-----	-----	-----	-----
* 2 Pentafluorobenzene		168.00	5.833	5.820	(1.000)	210449	250	
* 24 1,4-Difluorobenzene		114.00	6.938	6.925	(1.000)	269431	250	
* 38 Chlorobenzene-d5		117.00	11.110	11.106	(1.000)	212751	250	
* 48 1,4-Dichlorobenzene-d4		152.00	14.488	14.493	(1.000)	105634	250	
\$ 19 1,2-Dichloroethane-d4		102.00	6.011	5.990	(0.866)	20526	250	49
\$ 32 Toluene-d8		98.00	9.158	9.154	(1.320)	284975	240	49
\$ 47 Bromofluorobenzene		95.00	12.777	12.782	(1.842)	119855	240	48

Data File: /chem/1.i/1950524.b/l144s11.d  
Report Date: 25-May-1995 07:01

Page 2

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: l144s11.d  
Lab Smp Id:  
Analysis Type: VOA  
Intant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950524.b/l8260w.m  
Misc Info: L144W2/L144B03/L144CW3

Calibration Date: 05/24/95  
Calibration Time: 2004

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	210449	14.33
24 1,4-Difluorobenzene	239653	119826	479306	269431	12.43
38 Chlorobenzene-d5	191926	95963	383852	212751	10.85
48 1,4-Dichlorobenzene-	101540	50770	203080	105634	4.03

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.83	0.21
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.94	0.18
38 Chlorobenzene-d5	11.11	10.61	11.61	11.11	0.03
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.49	-0.04

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144s11.d  
Date : 25-MAY-1995 01:22

Client ID:

Sample Info: 9505714-01A-8260M/1X

Purge Volume: 5.0

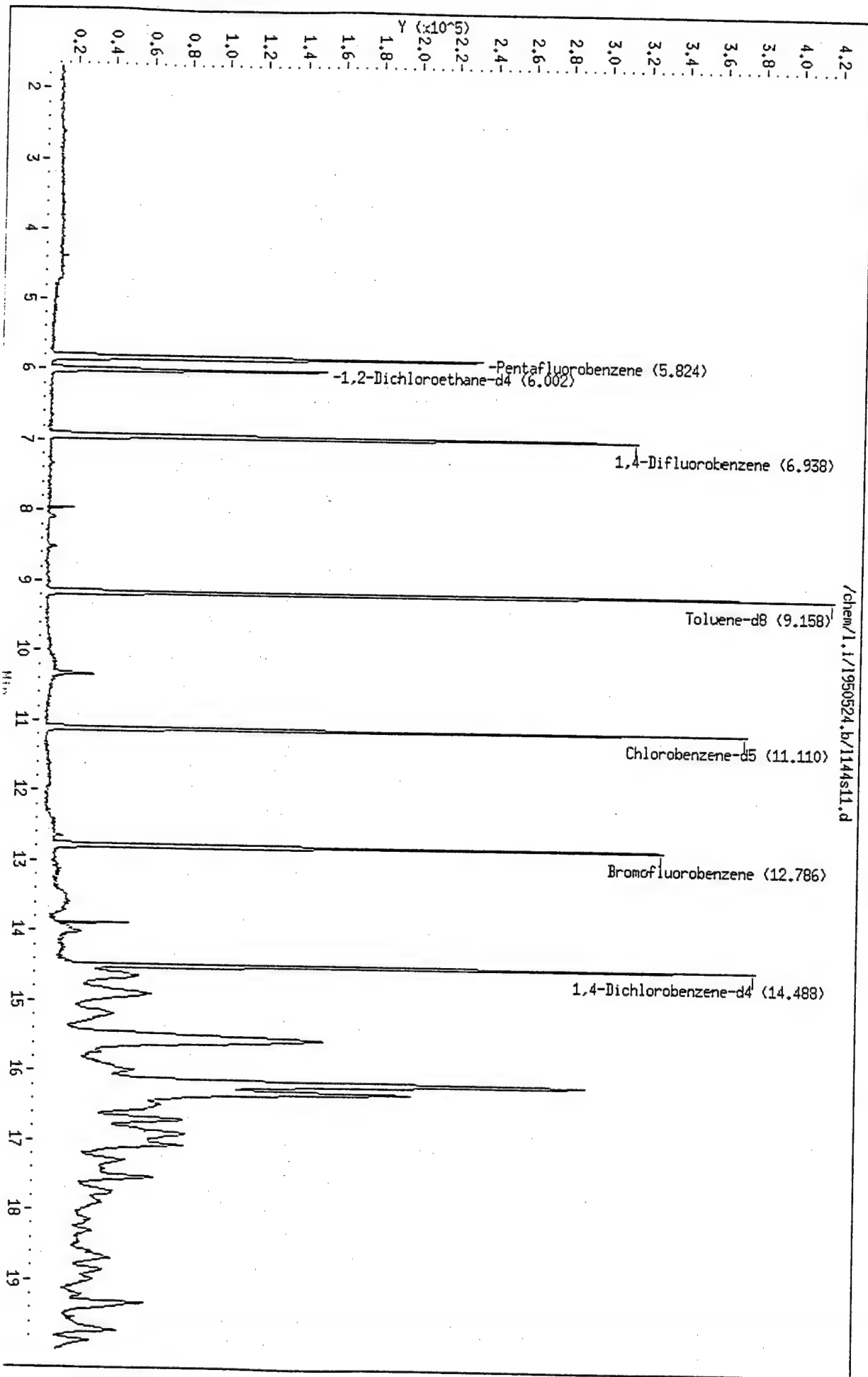
Column phase: 30m.hp5ms,0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950524.b/1144s11.d



Data File: /chem/h.i/h950601.b/h152s01.d  
Report Date: 01-Jun-1995 11:51

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950601.b/h152s01.d

Lab Smp Id:

Inj Date : 01-JUN-1995 11:04

Operator : LH

Inst ID: h.i

Smp Info : 9505714-01B-8270W/1X

Misc Info : E142C1/J142B01/H152CC1

Comment :

Method : /chem/h.i/h950601.b/hclpw.m

Meth Date : 01-Jun-1995 11:17 jimmy

Quant Type: ISTD

Cal Date : 01-JUN-1995 09:55

Cal File: h152cc1.d

Als bottle: 1

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
* 11 1,4-Dichlorobenzene-d4	152.00	3.780	3.791	(1.000)	214058	40	
* 32 Naphthalene-d8	136.00	4.954	4.952	(1.000)	690310	40	
* 48 Acenaphthene-d10	164.00	6.684	6.683	(1.000)	315574	40	
* 65 Phenanthrene-d10	188.00	8.154	8.152	(1.000)	326875	40	
* 76 Chrysene-d12	240.00	10.844	10.843	(1.000)	137513	40	
* 83 Perylene-d12	264.00	12.681	12.680	(1.000)	71253	40	
\$ 23 Nitrobenzene-d5	82.00	4.290	4.288	(0.866)	819289	94	47
\$ 41 2-Fluorobiphenyl	172.00	6.020	6.019	(0.901)	837531	84	42
\$ 72 Terphenyl-d14	244.00	9.777	9.788	(0.902)	284251	72	36
\$ 4 Phenol-d5	99.00	3.531	3.530	(0.934)	1304691	120	61
\$ 3 2-Fluorophenol	112.00	2.820	2.819	(0.746)	893039	110	56
\$ 61 2,4,6-Tribromophenol	329.70	7.490	7.489	(0.919)	108467	140	68

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h152s01.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950601.b/hclpw.m  
 Misc Info: E142C1/J142B01/H152CC1

Calibration Date: 06/01/95  
 Calibration Time: 0955

Level: LOW  
 Sample Type: WATER

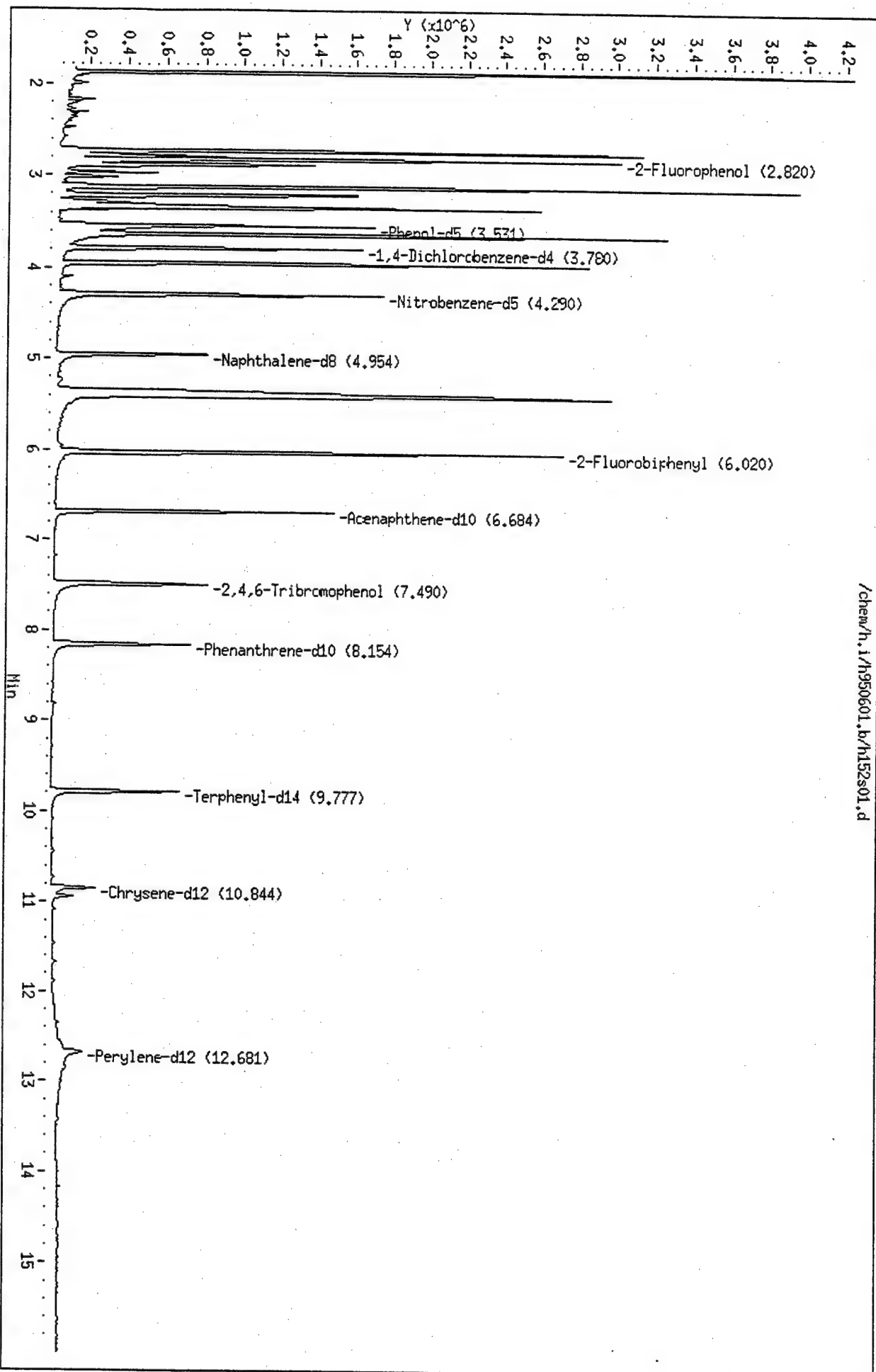
COMPOUND =====	STANDARD =====	AREA LIMIT		SAMPLE =====	% DIFF =====
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	201362	100681	402724	214058	6.31
32 Naphthalene-d8	726976	363488	1453952	690310	-5.04
48 Acenaphthene-d10	300745	150372	601490	315574	4.93
65 Phenanthrene-d10	319648	159824	639296	326875	2.26
76 Chrysene-d12	175171	87586	350342	137513	-21.50
83 Perylene-d12	75734	37867	151468	71253	-5.92

COMPOUND =====	STANDARD =====	RT LIMIT		SAMPLE =====	% DIFF =====
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.79	3.29	4.29	3.78	-0.28
32 Naphthalene-d8	4.95	4.45	5.45	4.95	0.03
48 Acenaphthene-d10	6.68	6.18	7.18	6.68	0.02
65 Phenanthrene-d10	8.15	7.65	8.65	8.15	0.02
76 Chrysene-d12	10.84	10.34	11.34	10.84	0.01
83 Perylene-d12	12.68	12.18	13.18	12.68	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950601.b/h152s01.d  
Date : 01-JUN-1995 11:04  
Client ID:  
Sample Info: 9505714-01B-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-02

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathyryn Pritchett

06/09/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-003A-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 13:45:00  
DATE RECEIVED: 05/19/95

PARAMETER	ANALYTICAL DATA		MDL*	UNITS
	RESULTS			
Benzene	ND	1	ug/L	
Bromobenzene	ND	1	ug/L	
Bromochloromethane	ND	1	ug/L	
Bromodichloromethane	ND	1	ug/L	
Bromoform	ND	1	ug/L	
Bromomethane	ND	2	ug/L	
n-Butylbenzene	ND	1	ug/L	
sec-Butylbenzene	ND	1	ug/L	
tert-Butylbenzene	ND	1	ug/L	
Carbon tetrachloride	ND	1	ug/L	
Chlorobenzene	ND	1	ug/L	
Chlorodibromomethane	ND	1	ug/L	
Chloroethane	ND	4	ug/L	
Chloroform	ND	1	ug/L	
Chloromethane	ND	1	ug/L	
2-Chlorotoluene	ND	1	ug/L	
4-Chlorotoluene	ND	1	ug/L	
1,2-Dibromo-3-chloropropane	ND	1	ug/L	
1,2-Dibromoethane	ND	1	ug/L	
Dibromomethane	ND	1	ug/L	
1,2-Dichlorobenzene	ND	1	ug/L	
1,3-Dichlorobenzene	ND	1	ug/L	
1,4-Dichlorobenzene	ND	1	ug/L	
Dichlorodifluoromethane	ND	1	ug/L	
1,1-Dichloroethane	ND	1	ug/L	
1,2-Dichloroethane	ND	1	ug/L	
1,1-Dichloroethene	ND	1	ug/L	
1,2-Dichloropropane	ND	1	ug/L	
1,3-Dichloropropane	ND	1	ug/L	
2,2-Dichloropropane	ND	1	ug/L	
1,1-Dichloropropene	ND	1	ug/L	
Ethylbenzene	ND	1	ug/L	
Hexachlorobutadiene	ND	1	ug/L	
Isopropylbenzene	ND	1	ug/L	
p-Isopropyltoluene	ND	1	ug/L	
Methylene chloride	ND	1	ug/L	
Naphthalene	ND	1	ug/L	
n-Propylbenzene	ND	1	ug/L	

METHOD: 8260 Water, Volatile Organics  
(continued on next page)





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-02

Operational Tech

SAMPLE ID: 026-003A-MW-GW1

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	MDL*	
Styrene	ND	1	ug/L
1,1,1,2-Tetrachloroethane	ND	1	ug/L
1,1,2,2-Tetrachloroethane	ND	1	ug/L
Tetrachloroethene	ND	1	ug/L
Toluene	ND	1	ug/L
1,2,3-Trichlorobenzene	ND	1	ug/L
1,2,4-Trichlorobenzene	ND	1	ug/L
1,1,1-Trichloroethane	ND	1	ug/L
1,1,2-Trichloroethane	ND	1	ug/L
Trichloroethene	ND	1	ug/L
Trichlorofluoromethane	ND	1	ug/L
1,2,3-Trichloropropane	ND	1	ug/L
1,2,4-Trimethylbenzene	ND	1	ug/L
1,3,5-Trimethylbenzene	ND	1	ug/L
Vinyl chloride	ND	1	ug/L
Xylenes (total)	ND	1	ug/L
1,2-Dichloroethene (total)	ND	1	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50	98	76	114
Toluene-d8	50	100	88	110
4-Bromofluorobenzene	50	96	86	115

ANALYZED BY: JC

DATE/TIME: 05/25/95 01:51:00

METHOD: 8260 Water, Volatile Organics

NOTES: \* - Method Detection Limit

NA - Not Analyzed

ND - Not Detected

D - Surr. diluted out.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505714-02

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-003A-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 13:45:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	5	ug/L
Benzo(g,h,i)Perylene	ND	25	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	25	ug/L
2,6-Dinitrotoluene	ND	5	ug/L
	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505714-02

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 026-003A-MW-GW1

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno (1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505714-02

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 026-003A-MW-GW1

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	83	35	114
2-Fluorobiphenyl	50 ug/L	84	43	116
Terphenyl-d14	50 ug/L	83	33	141
Phenol-d5	75 ug/L	78	10	110
2-Fluorophenol	75 ug/L	66	21	110
2,4,6-Tribromophenol	75 ug/L	118	10	123

ANALYZED BY: LH

DATE/TIME: 05/31/95 17:54:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/1.i/1950524.b/l144s12.d  
Report Date: 25-May-1995 07:01

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950524.b/l144s12.d

Lab Smp Id:

Inj Date : 25-MAY-1995 01:51

Operator : JC

Inst ID: 1.i

Smp Info : 9505714-02A-8260W/1X

Misc Info : L144W2/L144B03/L144CW3

Comment :

Method : /chem/1.i/1950524.b/l8260w.m

Acq Date : 24-May-1995 20:31 jimmy

Quant Type: ISTD

Cal Date : 24-MAY-1995 20:04

Cal File: l144cw3.d

Sis bottle: 22

Int Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pentafluorobenzene	168.00	5.813	5.820	(1.000)	204950	250	
* 24 1,4-Difluorobenzene	114.00	6.928	6.925	(1.000)	258670	250	
* 98 Chlorobenzene-d5	117.00	11.099	11.106	(1.000)	205678	250	
48 1,4-Dichlorobenzene-d4	152.00	14.487	14.493	(1.000)	102161	250	
19 1,2-Dichloroethane-d4	102.00	5.992	5.990	(0.865)	19629	240	49
S 32 Toluene-d8	98.00	9.156	9.154	(1.322)	280279	250	50
7 17 Bromofluorobenzene	95.00	12.775	12.782	(1.844)	115833	240	48

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: l.i  
Lab File ID: l144s12.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/l.i/1950524.b/18260w.m  
Misc Info: L144W2/L144B03/L144CW3

Calibration Date: 05/24/95  
Calibration Time: 2004

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	204950	11.34
24 1,4-Difluorobenzene	239653	119826	479306	258670	7.94
38 Chlorobenzene-d5	191926	95963	383852	205678	7.17
48 1,4-Dichlorobenzene-	101540	50770	203080	102161	0.61

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.81	-0.12
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.03
38 Chlorobenzene-d5	11.11	10.61	11.61	11.10	-0.06
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.49	-0.05

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144s12.d  
Date : 25-MAY-1995 01:51

Client ID:

Sample Info: 9505714-02A-8260M/1X

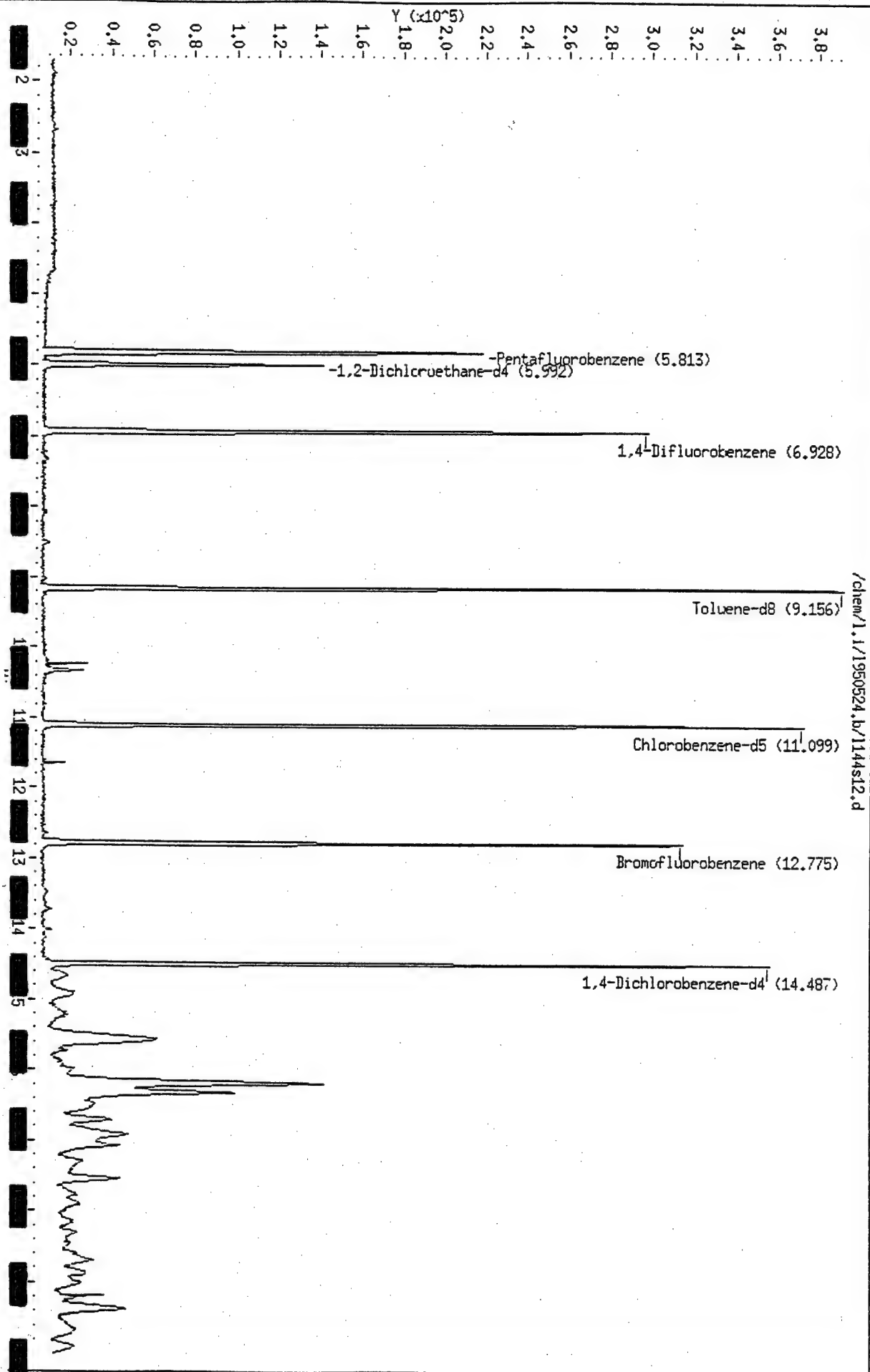
Purge Volume: 5.0

Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151s04.d

Lab Smp Id:

Inj Date : 31-MAY-1995 17:54

Operator : LH

Inst ID: h.i

Smp Info : 9505714-02B-8270W/1X

Misc Info : E142C1/J142B01/H151IC6

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 01-Jun-1995 11:58 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 4

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL	
						( ng)	( ug/L)	
* 11 1,4-Dichlorobenzene-d4	152.00	3.802	3.805	(1.000)	183182	40		
* 32 Naphthalene-d8	136.00	4.975	4.979	(1.000)	678364	40		
* 48 Acenaphthene-d10	164.00	6.729	6.721	(1.000)	291991	40		
* 65 Phenanthrene-d10	188.00	8.211	8.202	(1.000)	337785	40		
* 76 Chrysene-d12	240.00	10.912	10.916	(1.000)	192286	40		
* 83 Perylene-d12	264.00	12.785	12.788	(1.000)	92737	40		
\$ 23 Nitrobenzene-d5	82.00	4.312	4.315	(0.867)	675800	83	41	
\$ 41 2-Fluorobiphenyl	172.00	6.066	6.057	(0.901)	758162	84	42	
\$ 72 Terphenyl-d14	244.00	9.846	9.849	(0.902)	400494	83	41	
\$ 4 Phenol-d5	99.00	3.542	3.533	(0.931)	1116206	120	58	
\$ 3 2-Fluorophenol	112.00	2.819	2.822	(0.741)	735274	99	50	
\$ 61 2,4,6-Tribromophenol	329.70	7.535	7.538	(0.918)	148493	180	88	



SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151s04.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: E142C1/J142B01/H151IC6

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

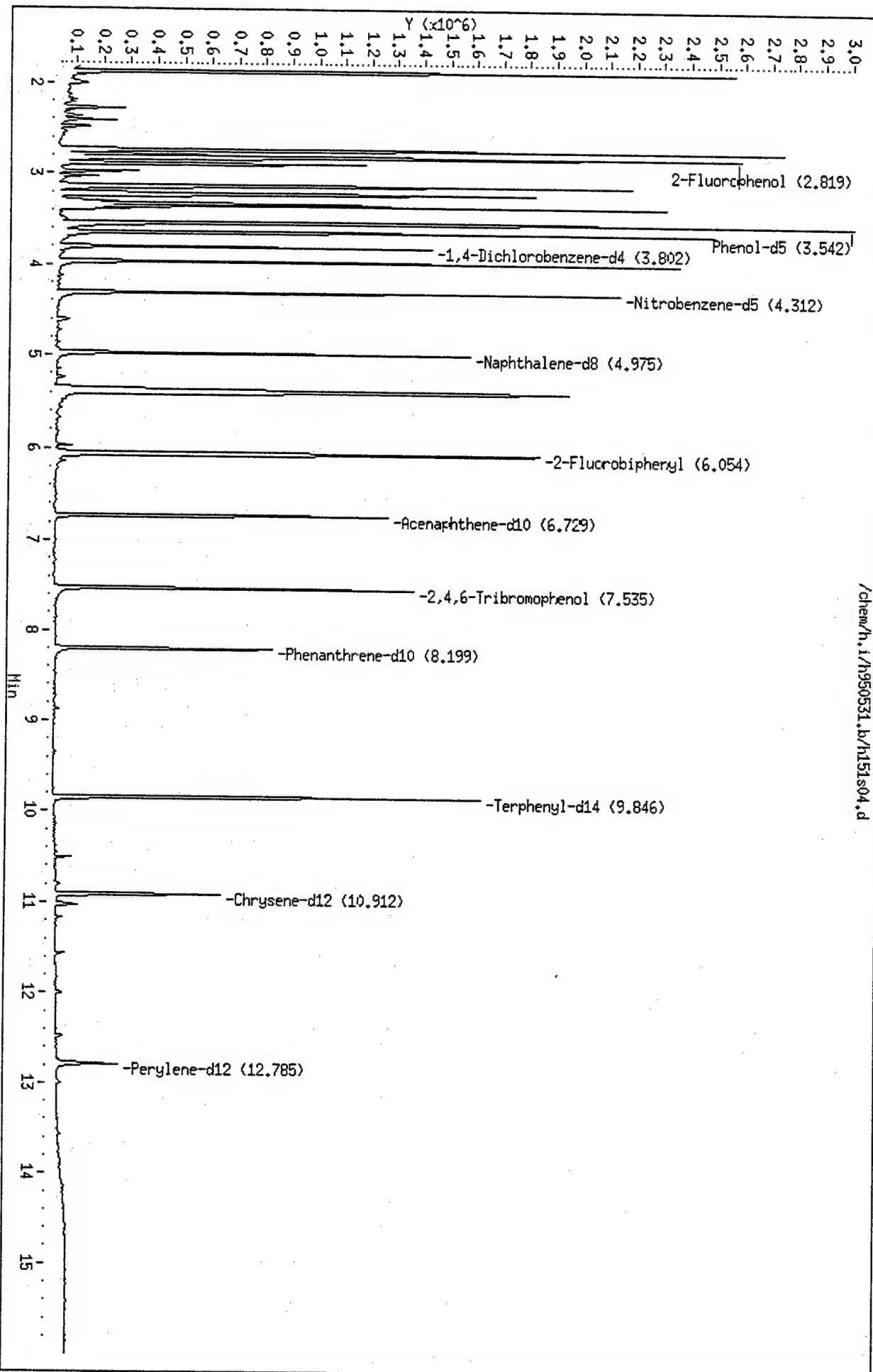
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	183182	60.30
32 Naphthalene-d8	440783	220392	881566	678364	53.90
48 Acenaphthene-d10	201424	100712	402848	291991	44.96
65 Phenanthrene-d10	261616	130808	523232	337785	29.11
76 Chrysene-d12	195160	97580	390320	192286	-1.47
83 Perylene-d12	123342	61671	246684	92737	-24.81

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.08
32 Naphthalene-d8	4.98	4.48	5.48	4.98	-0.06
48 Acenaphthene-d10	6.72	6.22	7.22	6.73	0.13
65 Phenanthrene-d10	8.20	7.70	8.70	8.21	0.11
76 Chrysene-d12	10.92	10.42	11.42	10.91	-0.03
83 Perylene-d12	12.79	12.29	13.29	12.78	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.i/h950531.b/h151s04.d  
Date : 31-MAY-1995 17:54  
Client ID:  
Sample Info: 9505714-028-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-03

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/09/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 10:12:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA			
PARAMETER	RESULTS	MDL*	UNITS
Benzene	ND	1	ug/L
Bromobenzene	ND	1	ug/L
Bromochloromethane	ND	1	ug/L
Bromodichloromethane	ND	1	ug/L
Bromoform	ND	1	ug/L
Bromomethane	ND	2	ug/L
n-Butylbenzene	ND	1	ug/L
sec-Butylbenzene	ND	1	ug/L
tert-Butylbenzene	ND	1	ug/L
Carbon tetrachloride	ND	1	ug/L
Chlorobenzene	ND	1	ug/L
Chlorodibromomethane	ND	1	ug/L
Chloroethane	ND	4	ug/L
Chloroform	ND	1	ug/L
Chloromethane	ND	1	ug/L
2-Chlorotoluene	ND	1	ug/L
4-Chlorotoluene	ND	1	ug/L
1,2-Dibromo-3-chloropropane	ND	1	ug/L
1,2-Dibromoethane	ND	1	ug/L
Dibromomethane	ND	1	ug/L
1,2-Dichlorobenzene	ND	1	ug/L
1,3-Dichlorobenzene	ND	1	ug/L
1,4-Dichlorobenzene	ND	1	ug/L
Dichlorodifluoromethane	ND	1	ug/L
1,1-Dichloroethane	ND	1	ug/L
1,2-Dichloroethane	ND	1	ug/L
1,1-Dichloroethene	ND	1	ug/L
1,2-Dichloropropane	ND	1	ug/L
1,3-Dichloropropane	ND	1	ug/L
2,2-Dichloropropane	ND	1	ug/L
1,1-Dichloropropene	ND	1	ug/L
Ethylbenzene	ND	1	ug/L
Hexachlorobutadiene	ND	1	ug/L
Isopropylbenzene	ND	1	ug/L
p-Isopropyltoluene	ND	1	ug/L
Methylene chloride	ND	1	ug/L
Naphthalene	ND	1	ug/L
n-Propylbenzene	ND	1	ug/L

METHOD: 8260 Water, Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-03

Operational Tech

SAMPLE ID: 026-001-MW-GW1

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	MDL*	
Styrene	ND	1	ug/L
1,1,1,2-Tetrachloroethane	ND	1	ug/L
1,1,2,2-Tetrachloroethane	ND	1	ug/L
Tetrachloroethene	ND	1	ug/L
Toluene	ND	1	ug/L
1,2,3-Trichlorobenzene	ND	1	ug/L
1,2,4-Trichlorobenzene	ND	1	ug/L
1,1,1-Trichloroethane	ND	1	ug/L
1,1,2-Trichloroethane	ND	1	ug/L
Trichloroethene	ND	1	ug/L
Trichlorofluoromethane	ND	1	ug/L
1,2,3-Trichloropropane	ND	1	ug/L
1,2,4-Trimethylbenzene	ND	1	ug/L
1,3,5-Trimethylbenzene	ND	1	ug/L
Vinyl chloride	ND	1	ug/L
Xylenes (total)	ND	1	ug/L
1,2-Dichloroethene (total)	ND	1	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50	94	76	114
Toluene-d8	50	98	88	110
4-Bromofluorobenzene	50	96	86	115

ANALYZED BY: JC

DATE/TIME: 05/25/95 02:20:00

METHOD: 8260 Water, Volatile Organics

NOTES: \* - Method Detection Limit

NA - Not Analyzed

ND - Not Detected

D - Surr. diluted out.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505714-03

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-001-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 10:12:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	25	ug/L
Benzo(g,h,i)Perylene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505714-03

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 026-001-MW-GW1

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	25	ug/L
2-Nitrophenol	ND	5	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	25	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	5	ug/L
Phenanthrene	ND	25	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	5	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-03

Operational Tech

SAMPLE ID: 026-001-MW-GW1

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	84	35	114
2-Fluorobiphenyl	50 ug/L	87	43	116
Terphenyl-d14	50 ug/L	67	33	141
Phenol-d5	75 ug/L	75	10	110
2-Fluorophenol	75 ug/L	68	21	110
2,4,6-Tribromophenol	75 ug/L	106	10	123

ANALYZED BY: LH

DATE/TIME: 05/31/95 18:17:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Data File: /chem/1.i/1950524.b/1144s13.d  
Report Date: 25-May-1995 07:02

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950524.b/1144s13.d  
Lab Smp Id:   
Inj Date : 25-MAY-1995 02:20  
Operator : JC  
Smp Info : 9505714-03A-8260W/1X  
Misc Info : L144W2/L144B03/L144CW3  
Comment :   
Method : /chem/1.i/1950524.b/18260w.m  
Meth Date : 24-May-1995 20:31 jimmy  
Cal Date : 24-MAY-1995 20:04  
Als bottle: 23  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: 1.i  
Quant Type: ISTD  
Cal File: 1144cw3.d  
Compound Sublist: 8260.sub

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
* 2 Pentafluorobenzene	168.00	5.811	5.820	(1.000)	194722	250	
* 24 1,4-Difluorobenzene	114.00	6.925	6.925	(1.000)	252730	250	
* 38 Chlorobenzene-d5	117.00	11.106	11.106	(1.000)	198052	250	
* 48 1,4-Dichlorobenzene-d4	152.00	14.484	14.493	(1.000)	96121	250	
* 19 1,2-Dichloroethane-d4	102.00	5.990	5.990	(0.865)	18213	230	47
* 32 Toluene-d8	98.00	9.154	9.154	(1.322)	269661	250	49
* 47 Bromofluorobenzene	95.00	12.773	12.782	(1.844)	112308	240	48



SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
File ID: 1144s13.d  
Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Integrator: JC  
Method File: /chem/1.i/1950524.b/18260w.m  
Misc Info: L144W2/L144B03/L144CW3

Calibration Date: 05/24/95

Calibration Time: 2004

Level: LOW

Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	194722	5.79
24 1,4-Difluorobenzene	239653	119826	479306	252730	5.46
38 Chlorobenzene-d5	191926	95963	383852	198052	3.19
8 1,4-Dichlorobenzene-	101540	50770	203080	96121	-5.34

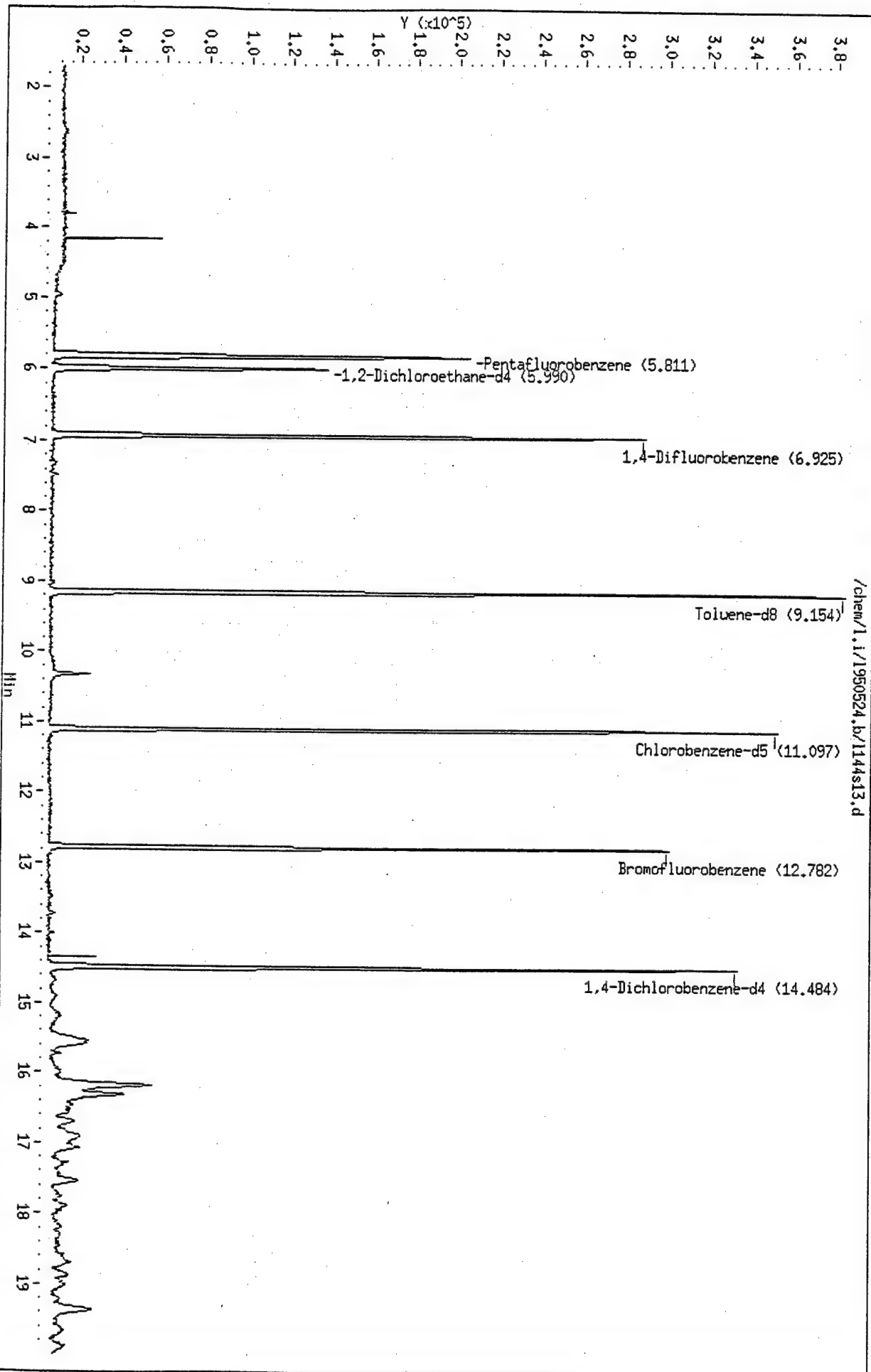
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.81	-0.15
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.00
38 Chlorobenzene-d5	11.11	10.61	11.61	11.11	0.00
8 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.48	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144s13.d  
Date : 25-MAY-1995 02:20  
Client ID:  
Sample Info: 9505714-03A-8260M/1X  
Purge Volume: 5.0  
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1  
Operator: JC  
Column diameter: 0.25

Page 4



Data File: /chem/h.i/h950531.b/h151s05.d  
Report Date: 01-Jun-1995 11:59

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151s05.d

Lab Smp Id:

Inj Date : 31-MAY-95 18:17

Operator : LH

Inst ID: h.i

Smp Info : 9505714-03B-8270W/1X

Misc Info : E142C1/J142B01/H151IC6

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 01-Jun-1995 11:58 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
*****	----	--	-----	-----	-----	-----	-----
* 11 1,4-Dichlorobenzene-d4	152.00	3.802	3.805	(1.000)	226920	40	
* 32 Naphthalene-d8	136.00	4.975	4.979	(1.000)	735914	40	
* 48 Acenaphthene-d10	164.00	6.729	6.721	(1.000)	282230	40	
* 65 Phenanthrene-d10	188.00	8.210	8.202	(1.000)	303225	40	
* 76 Chrysene-d12	240.00	10.912	10.916	(1.000)	174227	40	
* 83 Perylene-d12	264.00	12.784	12.788	(1.000)	109903	40	
\$ 23 Nitrobenzene-d5	82.00	4.311	4.315	(0.867)	747122	84	42
\$ 41 2-Fluorobiphenyl	172.00	6.065	6.057	(0.901)	756769	87	44
\$ 72 Terphenyl-d14	244.00	9.845	9.849	(0.902)	294755	67	34
\$ 4 Phenol-d5	99.00	3.541	3.533	(0.931)	1330102	110	56
\$ 3 2-Fluorophenol	112.00	2.818	2.822	(0.741)	944850	100	51
\$ 61 2,4,6-Tribromophenol	329.70	7.535	7.538	(0.918)	120183	160	80

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151s05.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: E142C1/J142B01/H151IC6

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	226920	98.57
32 Naphthalene-d8	440783	220392	881566	735914	66.96
48 Acenaphthene-d10	201424	100712	402848	282230	40.12
65 Phenanthrene-d10	261616	130808	523232	303225	15.90
76 Chrysene-d12	195160	97580	390320	174227	-10.73
83 Perylene-d12	123342	61671	246684	109903	-10.90

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.10
32 Naphthalene-d8	4.98	4.48	5.48	4.97	-0.07
48 Acenaphthene-d10	6.72	6.22	7.22	6.73	0.12
65 Phenanthrene-d10	8.20	7.70	8.70	8.21	0.10
76 Chrysene-d12	10.92	10.42	11.42	10.91	-0.03
83 Perylene-d12	12.79	12.29	13.29	12.78	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Date : 31-MAY-95 18:17

Client ID:

Sample Info: 9505714-03B-8270M/LX

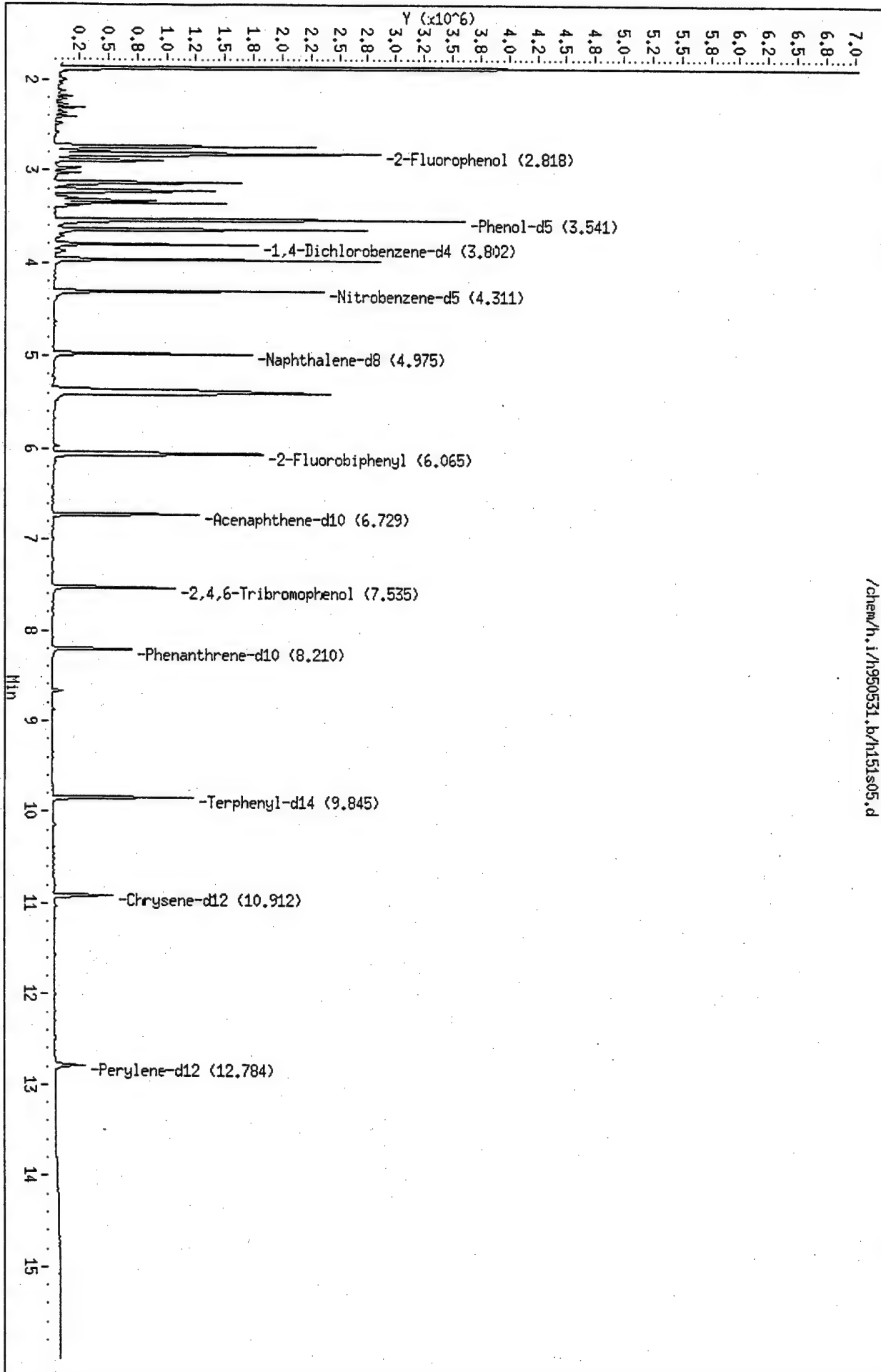
Volume Injected (uL): 2.0

Column phase:

Instrument: h.i

Operator: LH

Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-04

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/09/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-003-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 13:34:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA			
PARAMETER	RESULTS	MDL*	UNITS
Benzene	ND	1	ug/L
Bromobenzene	ND	1	ug/L
Bromochloromethane	ND	1	ug/L
Bromodichloromethane	ND	1	ug/L
Bromoform	ND	1	ug/L
Bromomethane	ND	2	ug/L
n-Butylbenzene	ND	1	ug/L
sec-Butylbenzene	ND	1	ug/L
tert-Butylbenzene	ND	1	ug/L
Carbon tetrachloride	ND	1	ug/L
Chlorobenzene	ND	1	ug/L
Chlorodibromomethane	ND	1	ug/L
Chloroethane	ND	4	ug/L
Chloroform	ND	1	ug/L
Chloromethane	ND	1	ug/L
2-Chlorotoluene	ND	1	ug/L
4-Chlorotoluene	ND	1	ug/L
1,2-Dibromo-3-chloropropane	ND	1	ug/L
1,2-Dibromoethane	ND	1	ug/L
Dibromomethane	ND	1	ug/L
1,2-Dichlorobenzene	ND	1	ug/L
1,3-Dichlorobenzene	ND	1	ug/L
1,4-Dichlorobenzene	ND	1	ug/L
Dichlorodifluoromethane	ND	1	ug/L
1,1-Dichloroethane	ND	1	ug/L
1,2-Dichloroethane	ND	1	ug/L
1,1-Dichloroethene	ND	1	ug/L
1,2-Dichloropropane	ND	1	ug/L
1,3-Dichloropropane	ND	1	ug/L
2,2-Dichloropropane	ND	1	ug/L
1,1-Dichloropropene	ND	1	ug/L
Ethylbenzene	ND	1	ug/L
Hexachlorobutadiene	ND	1	ug/L
Isopropylbenzene	ND	1	ug/L
p-Isopropyltoluene	ND	1	ug/L
Methylene chloride	ND	1	ug/L
Naphthalene	ND	1	ug/L
n-Propylbenzene	ND	1	ug/L

METHOD: 8260 Water, Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-04

Operational Tech

SAMPLE ID: 026-003-MW-GW1

ANALYTICAL DATA (continued)				
PARAMETER	RESULTS	MDL*	UNITS	
Styrene	ND	1	ug/L	
1,1,1,2-Tetrachloroethane	ND	1	ug/L	
1,1,2,2-Tetrachloroethane	ND	1	ug/L	
Tetrachloroethene	ND	1	ug/L	
Toluene	ND	1	ug/L	
1,2,3-Trichlorobenzene	ND	1	ug/L	
1,2,4-Trichlorobenzene	ND	1	ug/L	
1,1,1-Trichloroethane	ND	1	ug/L	
1,1,2-Trichloroethane	ND	1	ug/L	
Trichloroethene	ND	1	ug/L	
Trichlorofluoromethane	ND	1	ug/L	
1,2,3-Trichloropropane	ND	1	ug/L	
1,2,4-Trimethylbenzene	ND	1	ug/L	
1,3,5-Trimethylbenzene	ND	1	ug/L	
Vinyl chloride	ND	1	ug/L	
Xylenes (total)	ND	1	ug/L	
1,2-Dichloroethene (total)	ND	1	ug/L	

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50	96	76	114
Toluene-d8	50	100	88	110
4-Bromofluorobenzene	50	96	86	115

ANALYZED BY: JC

DATE/TIME: 05/25/95 02:49:00

METHOD: 8260 Water, Volatile Organics

NOTES: \* - Method Detection Limit

NA - Not Analyzed

ND - Not Detected

D - Surr. diluted out.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505714-04

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-003-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 13:34:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	5	ug/L
Benzo(g,h,i)Perylene	ND	25	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	25	ug/L
2,6-Dinitrotoluene	ND	5	ug/L
	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)





Certificate of Analysis No. H9-9505714-04

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 026-003-MW-GW1

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno (1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505714-04

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 026-003-MW-GW1

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	77	35	114
2-Fluorobiphenyl	50 ug/L	84	43	116
Terphenyl-d14	50 ug/L	87	33	141
Phenol-d5	75 ug/L	66	10	110
2-Fluorophenol	75 ug/L	61	21	110
2,4,6-Tribromophenol	75 ug/L	107	10	123

ANALYZED BY: LH

DATE/TIME: 05/31/95 18:40:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Data File: /chem/1.i/1950524.b/l144s14.d  
Report Date: 25-May-1995 07:02

Page 1

SPL Labs

Volatiles by 624/8240

Data file: /chem/1.i/1950524.b/l144s14.d

Lab Smp Id:

Inj Date: 25-MAY-1995 02:49

Operator: JC

Inst ID: 1.i

Smp Info: 9505714-04A-8260W/1X

Misc Info: L144W2/L144B03/L144CW3

Comment:

Method: /chem/1.i/1950524.b/l8260w.m

Acq Date: 24-May-1995 20:31 jimmy

Quant Type: ISTD

Cal Date: 24-MAY-1995 20:04

Cal File: l144cw3.d

Als bottle: 24

Int Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pentafluorobenzene	168.00	5.823	5.820	(1.000)	203357	250		
24 1,4-Difluorobenzene	114.00	6.937	6.925	(1.000)	263721	250		
8 Chlorobenzene-d5	117.00	11.109	11.106	(1.000)	206700	250		
8 1,4-Dichlorobenzene-d4	152.00	14.487	14.493	(1.000)	101561	250		
19 1,2-Dichloroethane-d4	102.00	6.001	5.990	(0.865)	19772	240	48	
22 Toluene-d8	98.00	9.157	9.154	(1.320)	285786	250	50	
7 Bromofluorobenzene	95.00	12.776	12.782	(1.842)	118089	240	48	

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1144s14.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950524.b/18260w.m  
Misc Info: L144W2/L144B03/L144CW3

Calibration Date: 05/24/95  
Calibration Time: 2004

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	203357	10.48
24 1,4-Difluorobenzene	239653	119826	479306	263721	10.04
38 Chlorobenzene-d5	191926	95963	383852	206700	7.70
48 1,4-Dichlorobenzene-	101540	50770	203080	101561	0.02

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.82	0.05
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.94	0.17
38 Chlorobenzene-d5	11.11	10.61	11.61	11.11	0.02
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.49	-0.04

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144s14.d  
Date : 25-MAY-1995 02:49

Client ID:

Sample Info: 9505714-040-8260M/LX

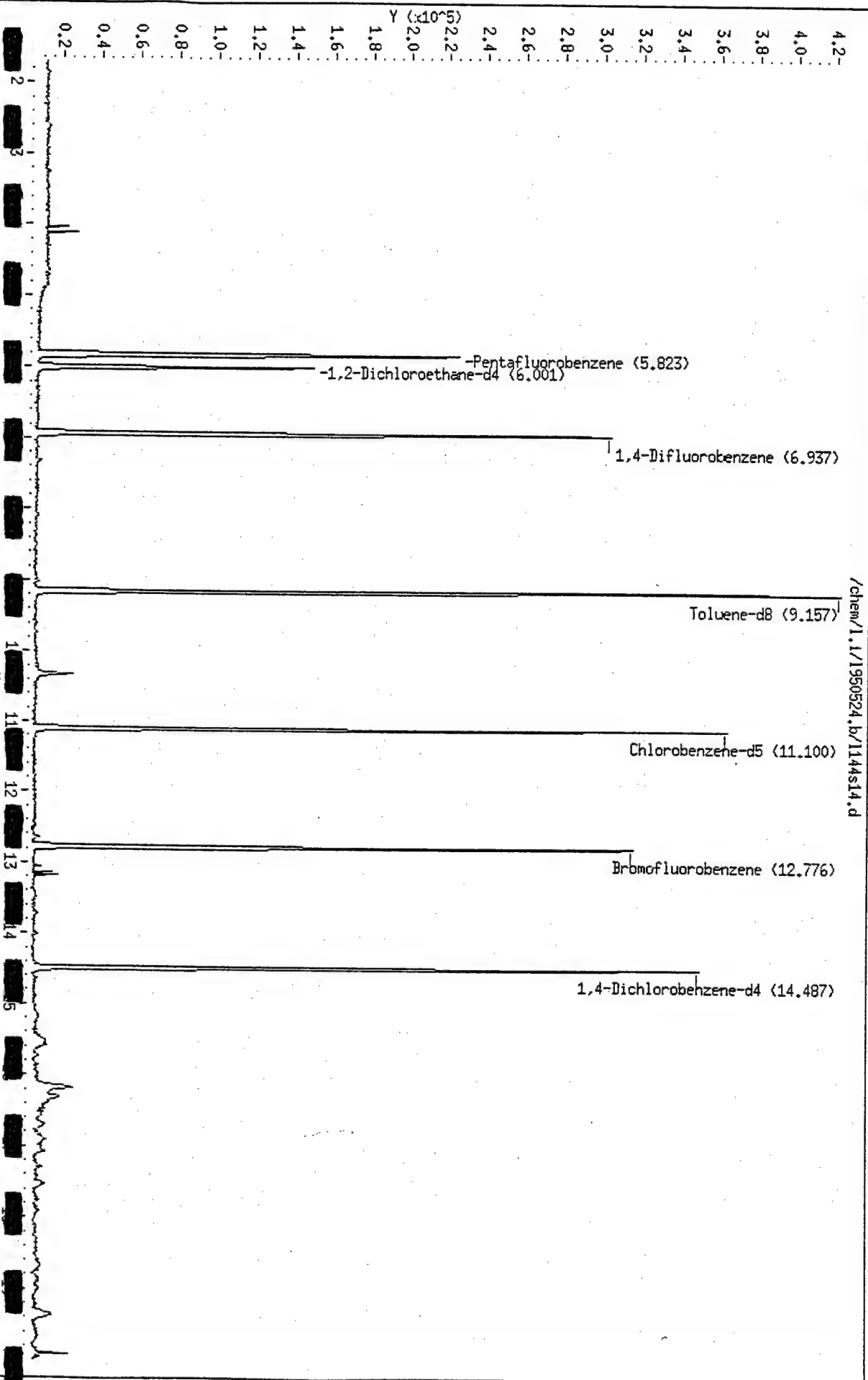
Purge Volume: 5.0

Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151s06.d

Lab Smp Id:

Inj Date : 31-MAY-1995 18:40

Operator : LH

Inst ID: h.i

Smp Info : 9505714-04B-8270W/1X

Misc Info : E142C1/J142B01/H151IC6

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 01-Jun-1995 11:58 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 6

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	----	--	-----	-----	-----	-----	-----
78 bis(2-Ethylhexyl)phthalate		149.00	11.032	11.034	(1.011)	30859	5	2(a)
* 11 1,4-Dichlorobenzene-d4		152.00	3.804	3.805	(1.000)	222626	40	
* 32 Naphthalene-d8		136.00	4.977	4.979	(1.000)	653949	40	
* 48 Acenaphthene-d10		164.00	6.731	6.721	(1.000)	234697	40	
* 65 Phenanthrene-d10		188.00	8.200	8.202	(1.000)	241294	40	
* 76 Chrysene-d12		240.00	10.914	10.916	(1.000)	152789	40	
* 83 Perylene-d12		264.00	12.786	12.788	(1.000)	96591	40	
\$ 23 Nitrobenzene-d5		82.00	4.313	4.315	(0.867)	608045	77	39
\$ 41 2-Fluorobiphenyl		172.00	6.055	6.057	(0.900)	609945	84	42
\$ 72 Terphenyl-d14		244.00	9.847	9.849	(0.902)	333193	87	43
\$ 4 Phenol-d5		99.00	3.543	3.533	(0.931)	1155674	100	50
\$ 3 2-Fluorophenol		112.00	2.820	2.822	(0.741)	827454	92	46
\$ 61 2,4,6-Tribromophenol		329.70	7.536	7.538	(0.919)	96740	160	80

QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151s06.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: E142C1/J142B01/H151IC6

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	222626	94.81
32 Naphthalene-d8	440783	220392	881566	653949	48.36
48 Acenaphthene-d10	201424	100712	402848	234697	16.52
65 Phenanthrene-d10	261616	130808	523232	241294	-7.77
76 Chrysene-d12	195160	97580	390320	152789	-21.71
83 Perylene-d12	123342	61671	246684	96591	-21.69

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.05
32 Naphthalene-d8	4.98	4.48	5.48	4.98	-0.04
48 Acenaphthene-d10	6.72	6.22	7.22	6.73	0.15
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	-0.02
76 Chrysene-d12	10.92	10.42	11.42	10.91	-0.02
83 Perylene-d12	12.79	12.29	13.29	12.79	-0.01

AREA UPPER LIMIT = +100% of internal standard area.

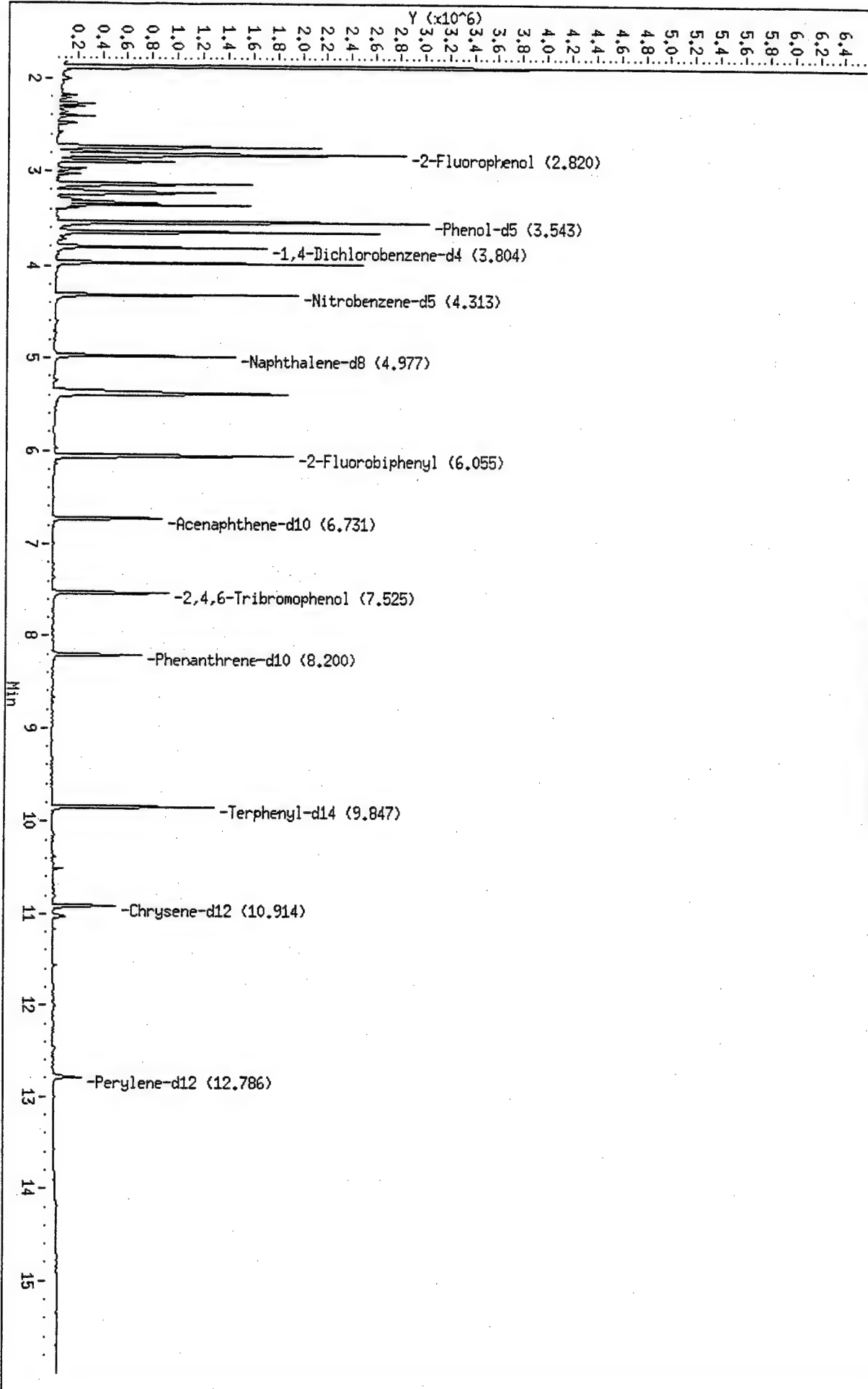
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h151s06.d  
Date : 31-May-1995 18:40  
Client ID:  
Sample Info: 9505714-04B-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25





Date : 31-MAY-1995 18:40

Client ID:

Instrument: h.i

Sample Info: 9505714-04B-8270W/1X

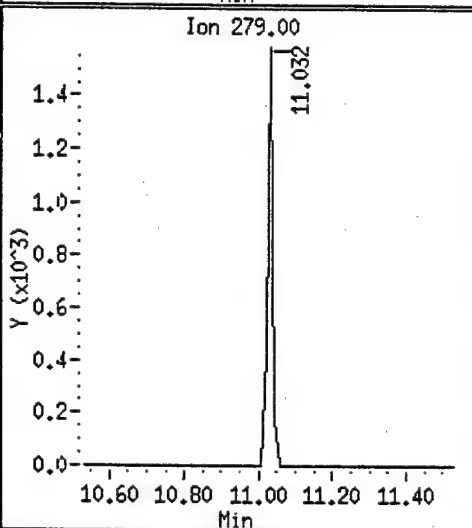
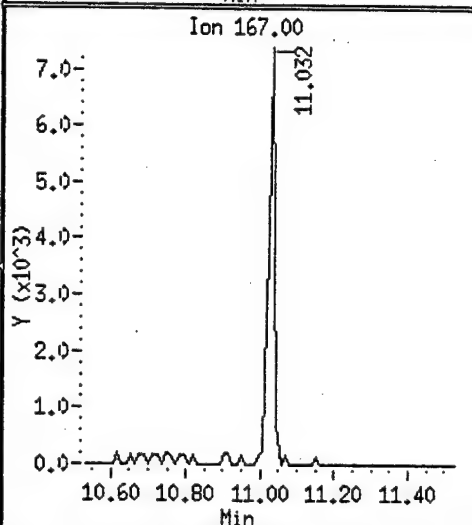
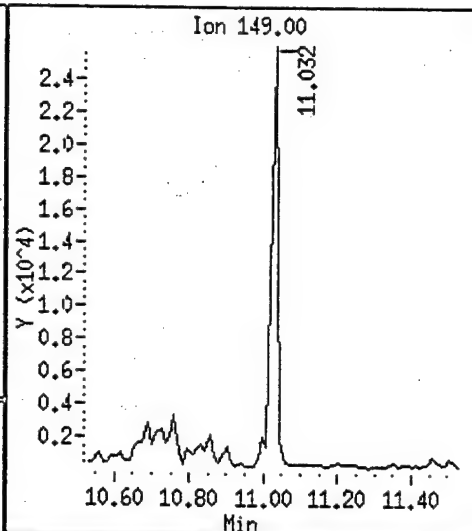
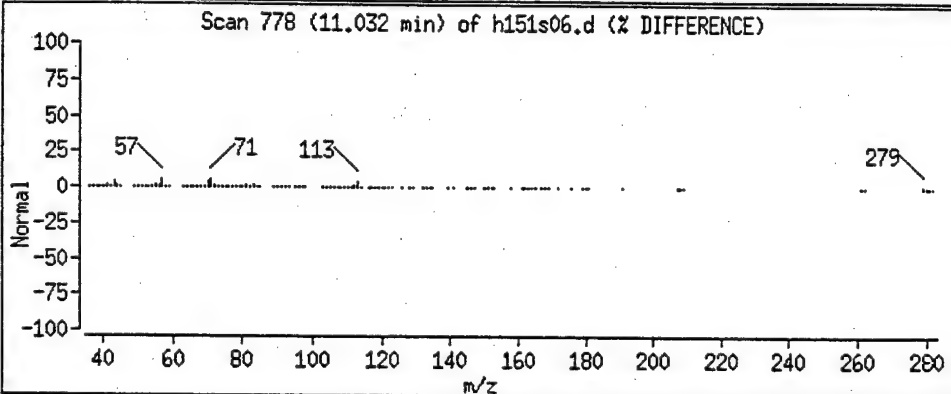
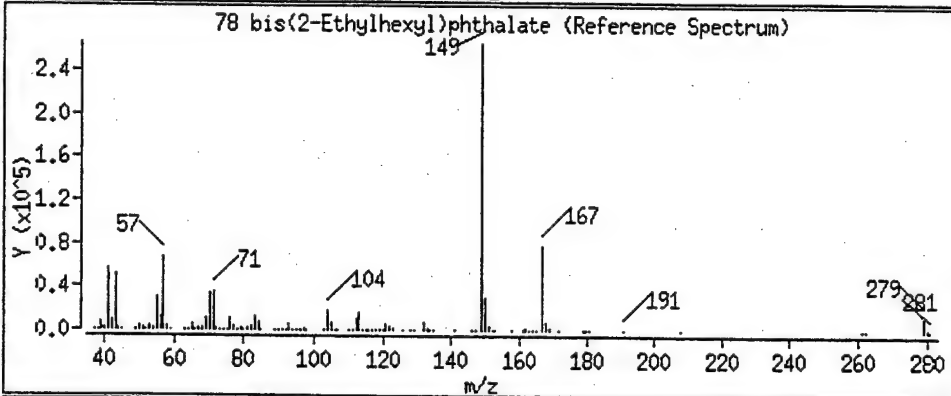
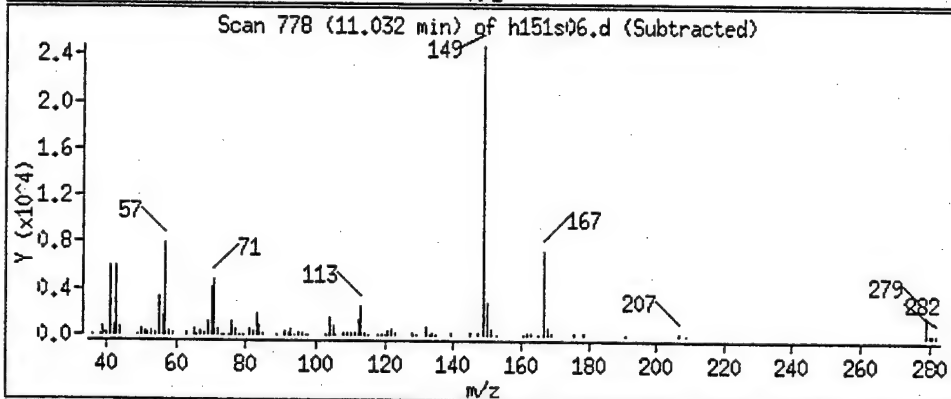
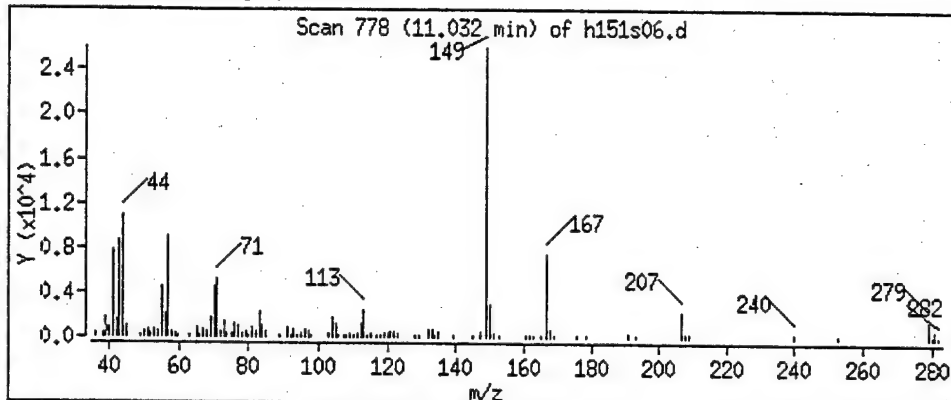
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

78 bis(2-Ethylhexyl)phthalate





Certificate of Analysis No. H9-9505714-05

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: SI-001-FB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 09:53:00  
DATE RECEIVED: 05/19/95

PARAMETER	ANALYTICAL DATA			UNITS
	RESULTS	DETECTION LIMIT		
Cadmium, Total METHOD 6010 *** Analyzed by: RSC Date: 05/31/95	ND	0.005		mg/L
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 06/01/95	ND	0.002		mg/L
Mercury, Total METHOD 7470 *** Analyzed by: PB Date: 06/02/95	ND	0.0004		mg/L
Nickel, Total METHOD 6010 *** Analyzed by: RSC Date: 05/31/95	ND	0.02		mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/22/95	05/22/95			

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505714-05

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DATE: 06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: SI-001-FB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 09:53:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 05/22/95	05/22/95			
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/24/95	ND	0.004	mg/L	

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

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Certificate of Analysis No. H9-9505714-05

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/09/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: SI-001-FB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 09:53:00  
DATE RECEIVED: 05/19/95

PARAMETER	ANALYTICAL DATA		MDL*	UNITS
	RESULTS			
Benzene	ND	1	ug/L	
Bromobenzene	ND	1	ug/L	
Bromochloromethane	ND	1	ug/L	
Bromodichloromethane	ND	1	ug/L	
Bromoform	ND	1	ug/L	
Bromomethane	ND	2	ug/L	
n-Butylbenzene	ND	1	ug/L	
sec-Butylbenzene	ND	1	ug/L	
tert-Butylbenzene	ND	1	ug/L	
Carbon tetrachloride	ND	1	ug/L	
Chlorobenzene	ND	1	ug/L	
Chlorodibromomethane	ND	1	ug/L	
Chloroethane	ND	4	ug/L	
Chloroform	5	1	ug/L	
Chloromethane	ND	1	ug/L	
2-Chlorotoluene	ND	1	ug/L	
4-Chlorotoluene	ND	1	ug/L	
1,2-Dibromo-3-chloropropane	ND	1	ug/L	
1,2-Dibromoethane	ND	1	ug/L	
Dibromomethane	ND	1	ug/L	
1,2-Dichlorobenzene	ND	1	ug/L	
1,3-Dichlorobenzene	ND	1	ug/L	
1,4-Dichlorobenzene	ND	1	ug/L	
Dichlorodifluoromethane	ND	1	ug/L	
1,1-Dichloroethane	ND	1	ug/L	
1,2-Dichloroethane	ND	1	ug/L	
1,1-Dichloroethene	ND	1	ug/L	
1,2-Dichloropropane	ND	1	ug/L	
1,3-Dichloropropane	ND	1	ug/L	
2,2-Dichloropropane	ND	1	ug/L	
1,1-Dichloropropene	ND	1	ug/L	
Ethylbenzene	ND	1	ug/L	
Hexachlorobutadiene	ND	1	ug/L	
Isopropylbenzene	ND	1	ug/L	
p-Isopropyltoluene	ND	1	ug/L	
Methylene chloride	4	1	ug/L	
Naphthalene	ND	1	ug/L	
n-Propylbenzene	ND	1	ug/L	

METHOD: 8260 Water, Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-05

Operational Tech

SAMPLE ID: SI-001-FB

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	MDL*	
Styrene	ND	1	ug/L
1,1,1,2-Tetrachloroethane	ND	1	ug/L
1,1,2,2-Tetrachloroethane	ND	1	ug/L
Tetrachloroethene	ND	1	ug/L
Toluene	ND	1	ug/L
1,2,3-Trichlorobenzene	ND	1	ug/L
1,2,4-Trichlorobenzene	ND	1	ug/L
1,1,1-Trichloroethane	ND	1	ug/L
1,1,2-Trichloroethane	ND	1	ug/L
Trichloroethene	ND	1	ug/L
Trichlorofluoromethane	ND	1	ug/L
1,2,3-Trichloropropane	ND	1	ug/L
1,2,4-Trimethylbenzene	ND	1	ug/L
1,3,5-Trimethylbenzene	ND	1	ug/L
Vinyl chloride	ND	1	ug/L
Xylenes (total)	ND	1	ug/L
1,2-Dichloroethene (total)	ND	1	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50	94	76	114
Toluene-d8	50	100	88	110
4-Bromofluorobenzene	50	98	86	115

ANALYZED BY: JC

DATE/TIME: 05/25/95 03:18:00

METHOD: 8260 Water, Volatile Organics

NOTES: \* - Method Detection Limit

NA - Not Analyzed

ND - Not Detected

D - Surr. diluted out.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



## Certificate of Analysis No. H9-9505714-05

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8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
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Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: SI-001-FB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 09:53:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	5	ug/L
Benzo(g,h,i)Perylene	ND	25	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	5	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	25	ug/L
2,6-Dinitrotoluene	ND	5	ug/L
	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-05

Operational Tech

SAMPLE ID: SI-001-FB

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-05

Operational Tech

SAMPLE ID: SI-001-FB

SURROGATES

	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	81	35	114
2-Fluorobiphenyl	50 ug/L	79	43	116
Terphenyl-d14	50 ug/L	112	33	141
Phenol-d5	75 ug/L	67	10	110
2-Fluorophenol	75 ug/L	67	21	110
2,4,6-Tribromophenol	75 ug/L	109	10	123

ANALYZED BY: LH

DATE/TIME: 05/31/95 19:04:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.



Sample File: /chem/1.i/1950524.b/l144s15.d  
Report Date: 25-May-1995 07:02

Page 1

SPL Labs

Volatiles by 624/8240

Sample file : /chem/1.i/1950524.b/l144s15.d

Lab Smp Id:

Ini Date : 25-MAY-1995 03:18

Operator : JC

Inst ID: 1.i

Sample Info : 9505714-05A-8260W/1X

Disc Info : L144W2/L144B03/L144CW3

Comment :

Method : /chem/1.i/1950524.b/l18260w.m

Acq Date : 24-May-1995 20:31 jimmy

Quant Type: ISTD

Cal Date : 24-MAY-1995 20:04

Cal File: l144cw3.d

Alc bottle: 25

Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
18 Chloroform	83.00	5.233	5.241	(0.900)	16610	24	5
Methylene Chloride	84.00	3.245	3.244	(0.558)	5960	19	4(a)
Pentafluorobenzene	168.00	5.812	5.820	(1.000)	194093	250	
24 1,4-Difluorobenzene	114.00	6.927	6.925	(1.000)	249959	250	
38 Chlorobenzene-d5	117.00	11.098	11.106	(1.000)	197064	250	
1,4-Dichlorobenzene-d4	152.00	14.486	14.493	(1.000)	96302	250	
1,2-Dichloroethane-d4	102.00	5.991	5.990	(0.865)	18243	240	47
32 Toluene-d8	98.00	9.155	9.154	(1.322)	270356	250	50
47 Bromofluorobenzene	95.00	12.774	12.782	(1.844)	113223	240	49

C Flag Legend

- Target compound detected but, quantitated amount  
Below Limit Of Quantitation (BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: 1.i  
 Lab File ID: 1144s15.d  
 Lab Smp Id:  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: JC  
 Method File: /chem/1.i/1950524.b/18260w.m  
 Misc Info: L144W2/L144B03/L144CW3

Calibration Date: 05/24/95  
 Calibration Time: 2004

Level: LOW  
 Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	194093	5.45
24 1,4-Difluorobenzene	239653	119826	479306	249959	4.30
38 Chlorobenzene-d5	191926	95963	383852	197064	2.68
48 1,4-Dichlorobenzene-	101540	50770	203080	96302	-5.16

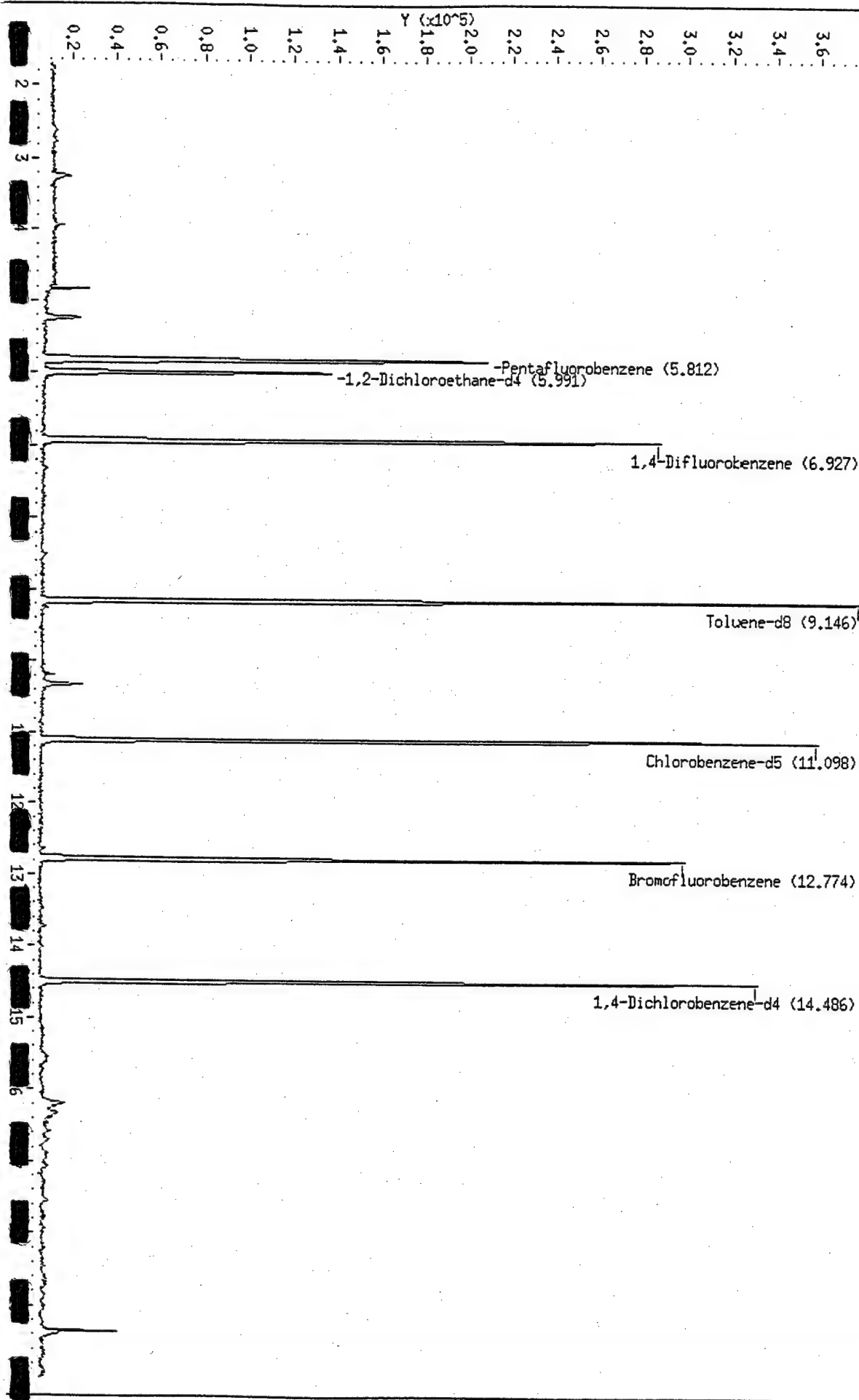
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.81	-0.13
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.02
38 Chlorobenzene-d5	11.11	10.61	11.61	11.10	-0.07
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.49	-0.05

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144s15.d  
Date : 25-MAY-1995 03:18  
Client ID:  
Sample Info: 9505714-05A-8260M/1X  
Purge Volume: 5.0  
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1  
Operator: JC  
Column diameter: 0.25

/chem/1.1/1950524.b/1144s15.d



Data File: /chem/1.i/1950524.b/1144s15.d

Date : 25-MAY-1995 03:18

Client ID:

Instrument: 1.i

Sample Info: 9505714-05A-8260W/1X

Purge Volume: 5.0

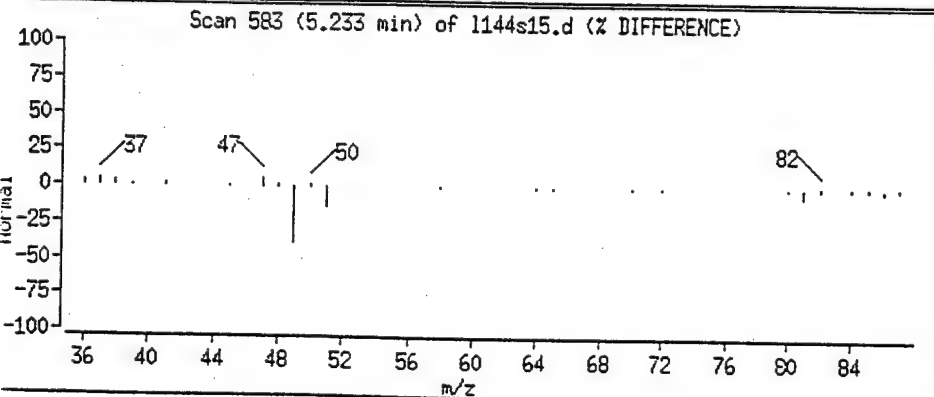
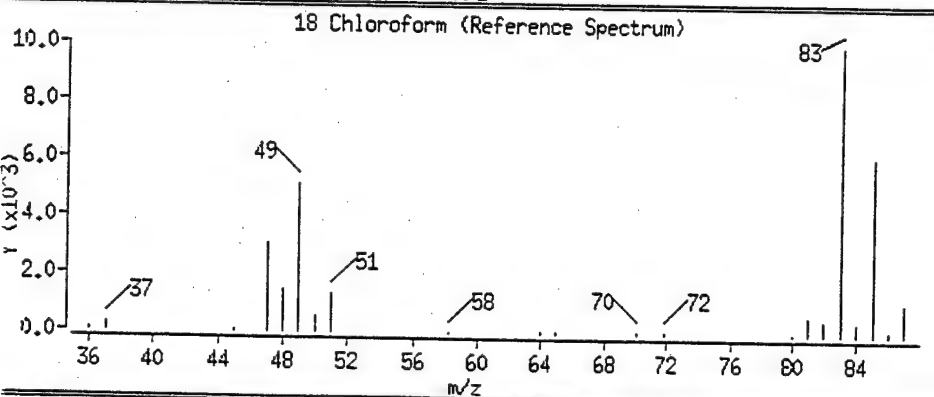
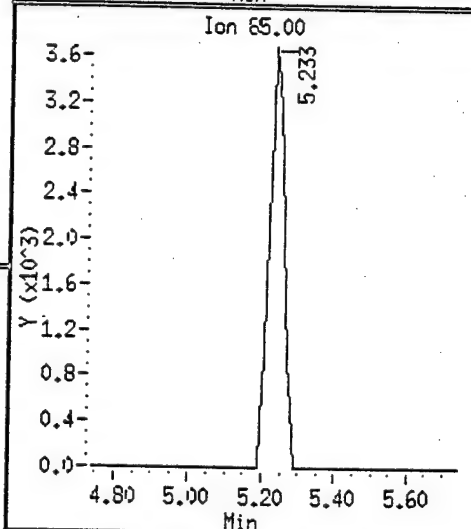
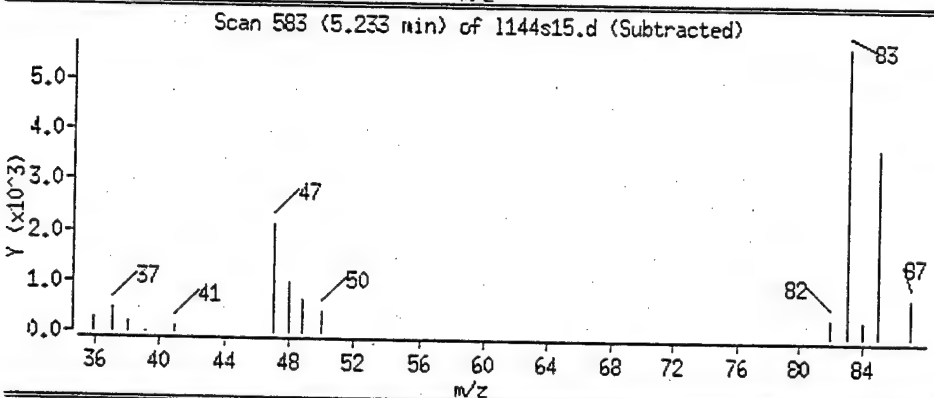
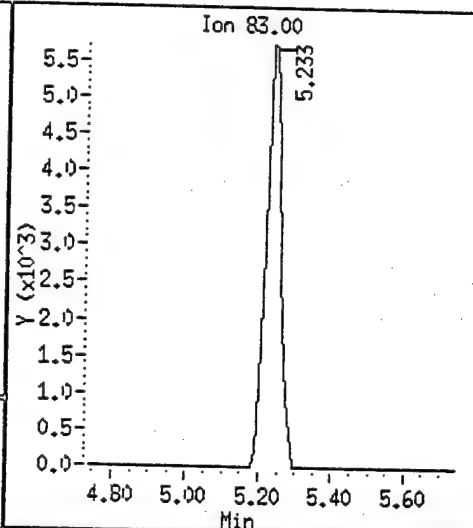
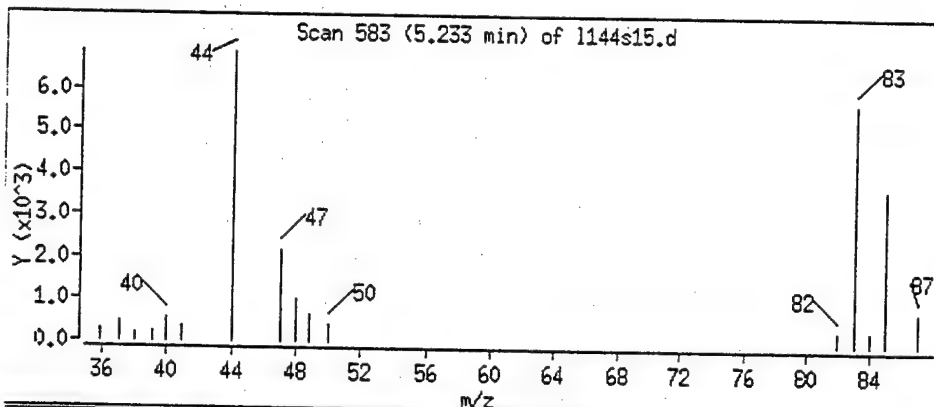
Operator: JC

Column phase: 30m,hp5ms,0.25u df

Column diameter: 0.25

Page 5

18 Chloroform



Data File: /chem/1.i/1950524.b/1144s15.d

Date : 25-MAY-1995 03:18

Client ID:

Instrument: 1.i

Sample Info: 9505714-05A-8260W/1X

Purge Volume: 5.0

Operator: JC

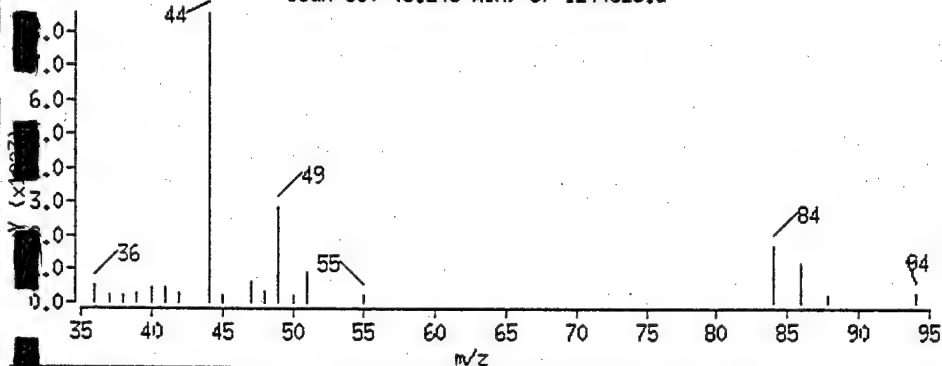
Column phase: 30m, hp5ms, 0.25u df

Column diameter: 0.25

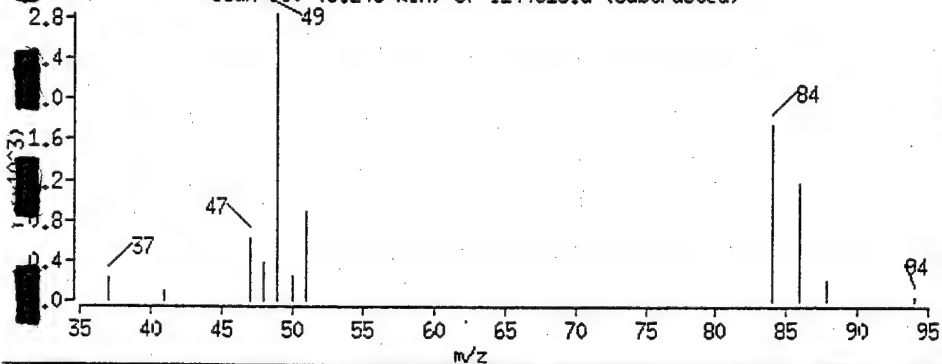
9 Methylene Chloride

Page 6

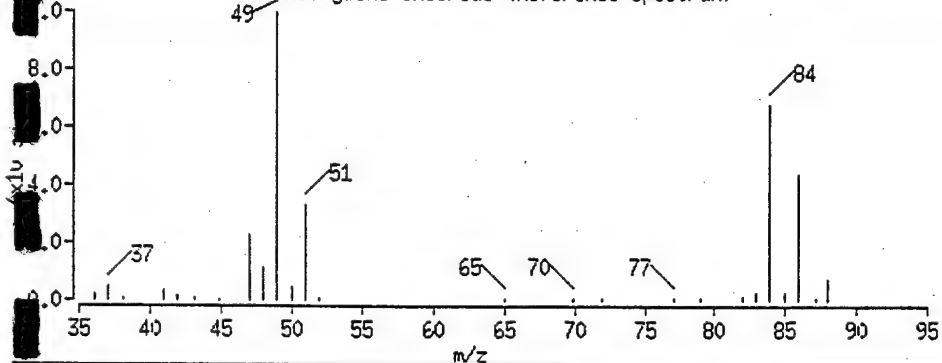
Scan 360 (3.245 min) of 1144s15.d



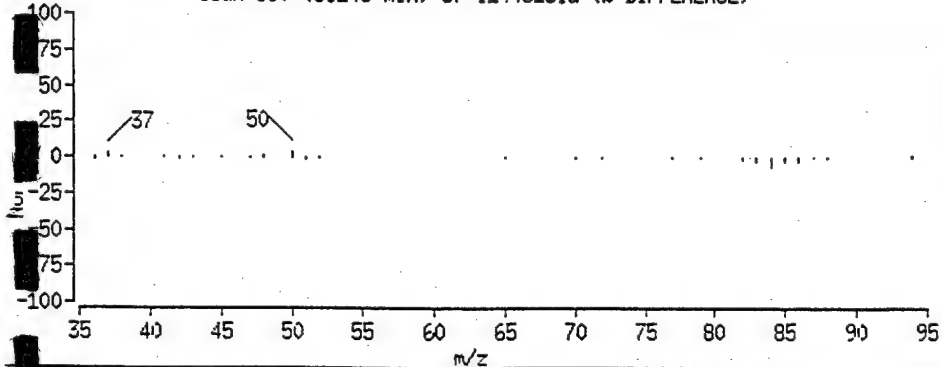
Scan 360 (3.245 min) of 1144s15.d (Subtracted)



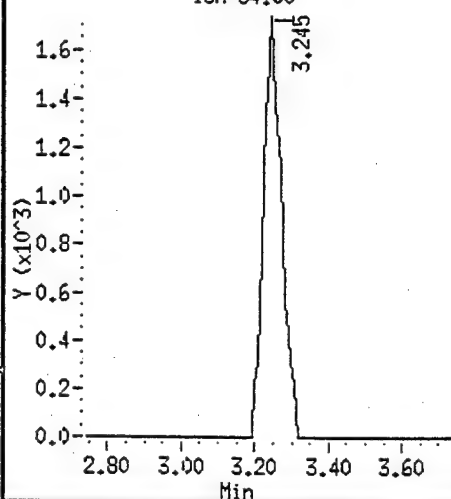
9 Methylene Chloride (Reference Spectrum)



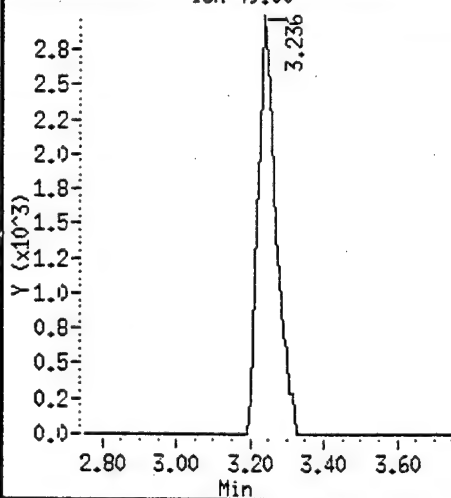
Scan 360 (3.245 min) of 1144s15.d (% DIFFERENCE)



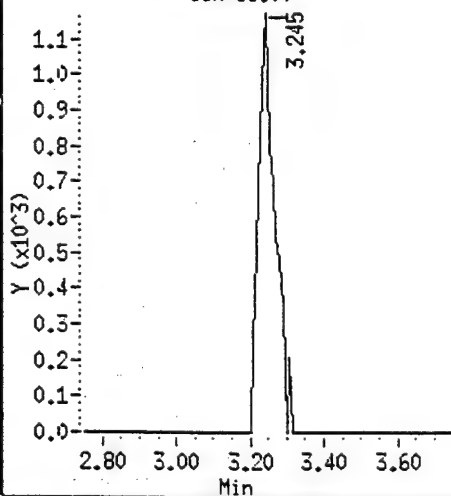
Ion 84.00



Ion 49.00



Ion 86.00



SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151s07.d

Lab Smp Id:

Inj Date : 31-MAY-1995 19:04

Operator : LH

Inst ID: h.i

Smp Info : 9505714-05B-8270W/1X

Misc Info : E142C1/J142B01/H151IC6

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 01-Jun-1995 11:58 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 7

Dil Factor: 1.000

Compound Sublist: 8270.sub

Integrator: HP RTE

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
69 Di-n-butylphthalate	149.00	8.874	8.877	(1.082)	138602	10	5
* 11 1,4-Dichlorobenzene-d4	152.00	3.802	3.805	(1.000)	122296	40	
* 32 Naphthalene-d8	136.00	4.975	4.979	(1.000)	457807	40	
* 48 Acenaphthene-d10	164.00	6.729	6.721	(1.000)	211366	40	
* 65 Phenanthrene-d10	188.00	8.198	8.202	(1.000)	268604	40	
* 76 Chrysene-d12	240.00	10.912	10.916	(1.000)	166600	40	
* 83 Perylene-d12	264.00	12.784	12.788	(1.000)	98171	40	
\$ 23 Nitrobenzene-d5	82.00	4.311	4.315	(0.867)	447108	81	41
\$ 41 2-Fluorobiphenyl	172.00	6.053	6.057	(0.900)	517029	79	40
\$ 72 Terphenyl-d14	244.00	9.845	9.849	(0.902)	469496	110	56
\$ 4 Phenol-d5	99.00	3.541	3.533	(0.931)	639655	100	50
\$ 3 2-Fluorophenol	112.00	2.818	2.822	(0.741)	499519	100	50
\$ 61 2,4,6-Tribromophenol	329.70	7.534	7.538	(0.919)	109177	160	82

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151s07.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: E142C1/J142B01/H151IC6

Calibration Date: 05/31/95  
Calibration Time: 1509  
Level: LOW  
Sample Type: WATER

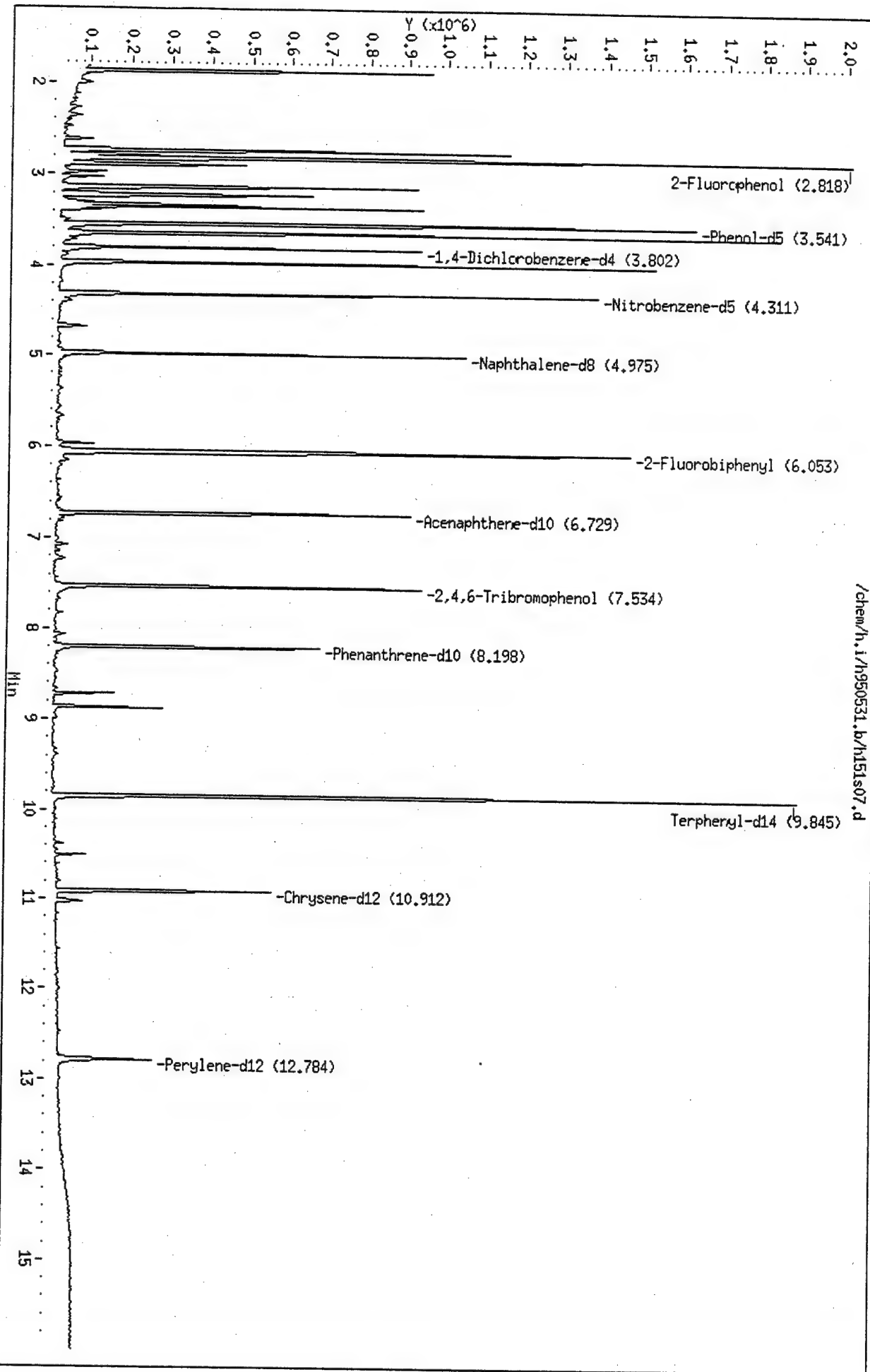
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	122296	7.02
32 Naphthalene-d8	440783	220392	881566	457807	3.86
48 Acenaphthene-d10	201424	100712	402848	211366	4.94
65 Phenanthrene-d10	261616	130808	523232	268604	2.67
76 Chrysene-d12	195160	97580	390320	166600	-14.63
83 Perylene-d12	123342	61671	246684	98171	-20.41

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.10
32 Naphthalene-d8	4.98	4.48	5.48	4.97	-0.08
48 Acenaphthene-d10	6.72	6.22	7.22	6.73	0.12
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	-0.05
76 Chrysene-d12	10.92	10.42	11.42	10.91	-0.03
83 Perylene-d12	12.79	12.29	13.29	12.78	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h151s07.d  
Date : 31-MAY-1995 19:04  
Client ID:  
Sample Info: 9505714-05B-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25





Data File: /chem/h.i/h950531.b/h151s07.d

Page 4

Date: 31-MAY-1995 19:04

Client ID:

Instrument: h.i

Sample Info: 9505714-05B-8270W/1X

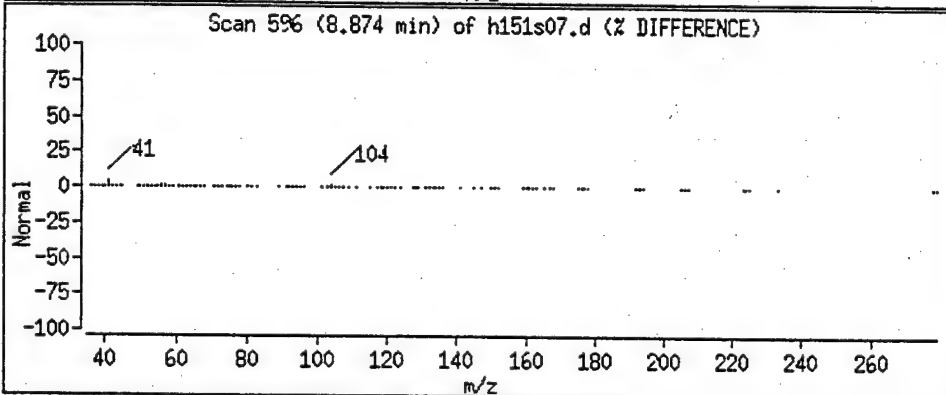
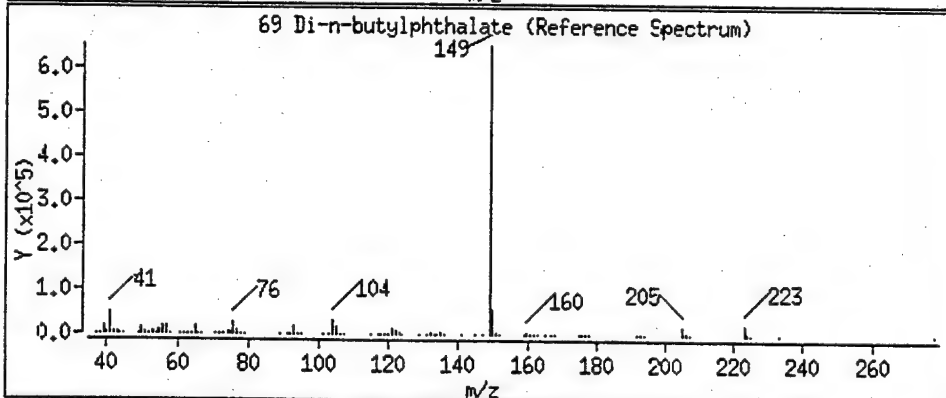
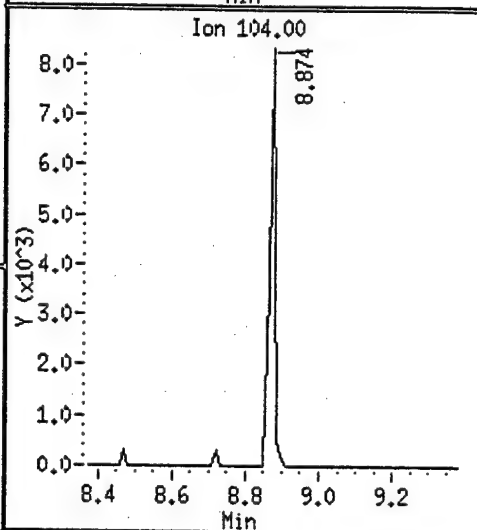
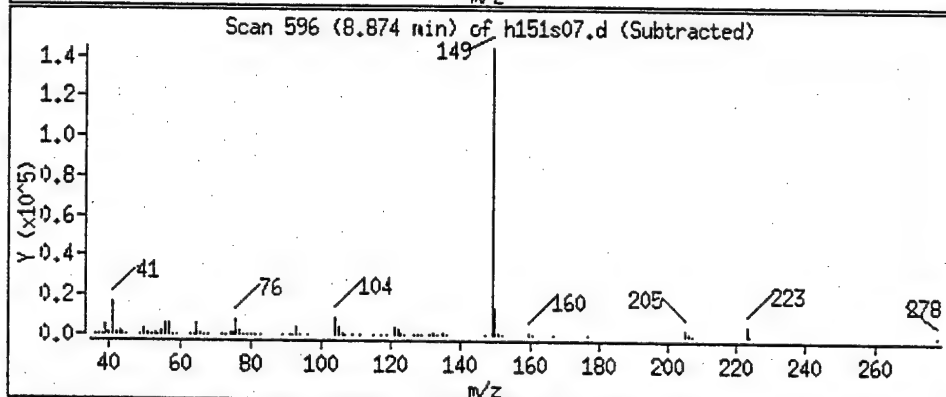
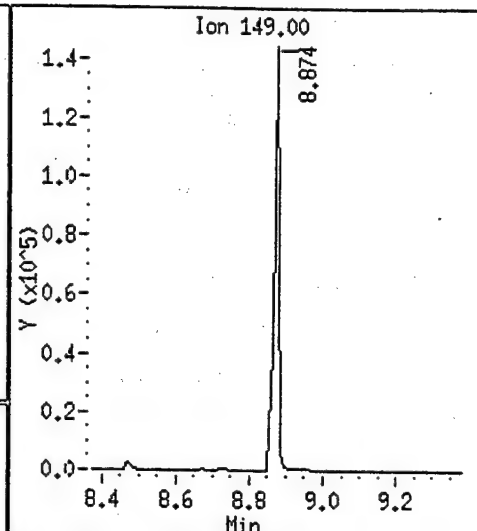
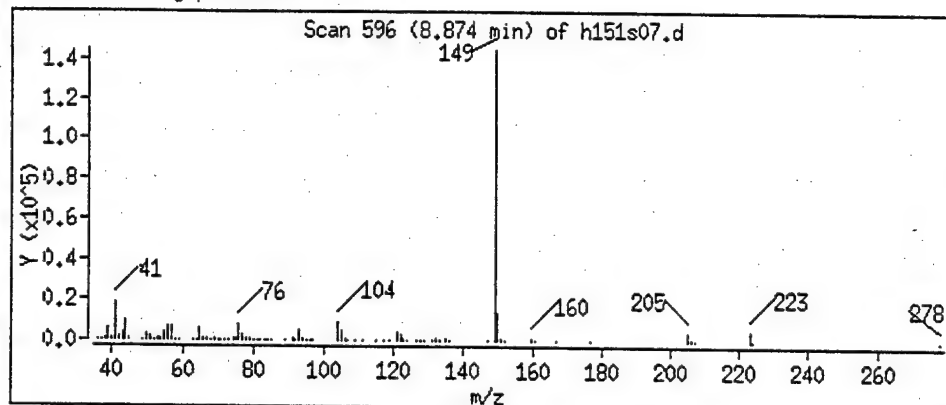
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

69 Di-n-butylphthalate





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-06

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/09/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Provided by SPL  
SAMPLE ID: SI-001-TB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/08/95  
DATE RECEIVED: 05/19/95

PARAMETER	ANALYTICAL DATA		
	RESULTS	MDL*	UNITS
Benzene	ND	1	ug/L
Bromobenzene	ND	1	ug/L
Bromochloromethane	ND	1	ug/L
Bromodichloromethane	ND	1	ug/L
Bromoform	ND	1	ug/L
Bromomethane	ND	2	ug/L
n-Butylbenzene	ND	1	ug/L
sec-Butylbenzene	ND	1	ug/L
tert-Butylbenzene	ND	1	ug/L
Carbon tetrachloride	ND	1	ug/L
Chlorobenzene	ND	1	ug/L
Chlorodibromomethane	ND	1	ug/L
Chloroethane	ND	4	ug/L
Chloroform	ND	1	ug/L
Chloromethane	ND	1	ug/L
2-Chlorotoluene	ND	1	ug/L
4-Chlorotoluene	ND	1	ug/L
1,2-Dibromo-3-chloropropane	ND	1	ug/L
1,2-Dibromoethane	ND	1	ug/L
Dibromomethane	ND	1	ug/L
1,2-Dichlorobenzene	ND	1	ug/L
1,3-Dichlorobenzene	ND	1	ug/L
1,4-Dichlorobenzene	ND	1	ug/L
Dichlorodifluoromethane	ND	1	ug/L
1,1-Dichloroethane	ND	1	ug/L
1,2-Dichloroethane	ND	1	ug/L
1,1-Dichloroethene	ND	1	ug/L
1,2-Dichloropropane	ND	1	ug/L
1,3-Dichloropropane	ND	1	ug/L
2,2-Dichloropropane	ND	1	ug/L
1,1-Dichloropropene	ND	1	ug/L
Ethylbenzene	ND	1	ug/L
Hexachlorobutadiene	ND	1	ug/L
Isopropylbenzene	ND	1	ug/L
p-Isopropyltoluene	ND	1	ug/L
Methylene chloride	ND	1	ug/L
Naphthalene	ND	1	ug/L
n-Propylbenzene	ND	1	ug/L

METHOD: 8260 Water, Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-06

Operational Tech

SAMPLE ID: SI-001-TB

ANALYTICAL DATA (continued)

PARAMETER	RESULTS	MDL*	UNITS
Styrene	ND	1	ug/L
1,1,1,2-Tetrachloroethane	ND	1	ug/L
1,1,2,2-Tetrachloroethane	ND	1	ug/L
Tetrachloroethene	ND	1	ug/L
Toluene	ND	1	ug/L
1,2,3-Trichlorobenzene	ND	1	ug/L
1,2,4-Trichlorobenzene	ND	1	ug/L
1,1,1-Trichloroethane	ND	1	ug/L
1,1,2-Trichloroethane	ND	1	ug/L
Trichloroethene	ND	1	ug/L
Trichlorofluoromethane	ND	1	ug/L
1,2,3-Trichloropropane	ND	1	ug/L
1,2,4-Trimethylbenzene	ND	1	ug/L
1,3,5-Trimethylbenzene	ND	1	ug/L
Vinyl chloride	ND	1	ug/L
Xylenes (total)	ND	1	ug/L
1,2-Dichloroethene (total)	ND	1	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50	96	76	114
Toluene-d8	50	100	88	110
4-Bromofluorobenzene	50	96	86	115

ANALYZED BY: JC

DATE/TIME: 05/25/95 03:47:00

METHOD: 8260 Water, Volatile Organics

NOTES: \* - Method Detection Limit

NA - Not Analyzed

ND - Not Detected

D - Surr. diluted out.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Data File: /chem/1.i/1950524.b/l144s16.d  
Report Date: 25-May-1995 07:02

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950524.b/l144s16.d

Lab Smp Id:

Inj Date : 25-MAY-1995 03:47

Operator : JC

Inst ID: 1.i

Smp Info : 9505714-06A-8260W/1X

Misc Info : L144W2/L144B03/L144CW3

Comment :

Method : /chem/1.i/1950524.b/18260w.m

Meth Date : 24-May-1995 20:31 jimmy

Quant Type: ISTD

Cal Date : 24-MAY-1995 20:04

Cal File: l144cw3.d

Als bottle: 26

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	----	--	-----	-----	-----	-----	-----
* 2 Pentafluorobenzene		168.00	5.812	5.820	(1.000)	187187	250	
* 24 1,4-Difluorobenzene		114.00	6.926	6.925	(1.000)	248092	250	
* 38 Chlorobenzene-d5		117.00	11.106	11.106	(1.000)	196909	250	
* 48 1,4-Dichlorobenzene-d4		152.00	14.485	14.493	(1.000)	94414	250	
\$ 19 1,2-Dichloroethane-d4		102.00	5.990	5.990	(0.865)	18192	240	48
\$ 32 Toluene-d8		98.00	9.154	9.154	(1.322)	269595	250	50
\$ 47 Bromofluorobenzene		95.00	12.782	12.782	(1.846)	110833	240	48

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Data File ID: 1144s16.d  
Lab Smp Id:

Calibration Date: 05/24/95  
Calibration Time: 2004

Analysis Type: VOA

Level: LOW

Quant Type: ISTD

Sample Type: WATER

Operator: JC

Method File: /chem/1.i/1950524.b/18260w.m

Misc Info: L144W2/L144B03/L144CW3

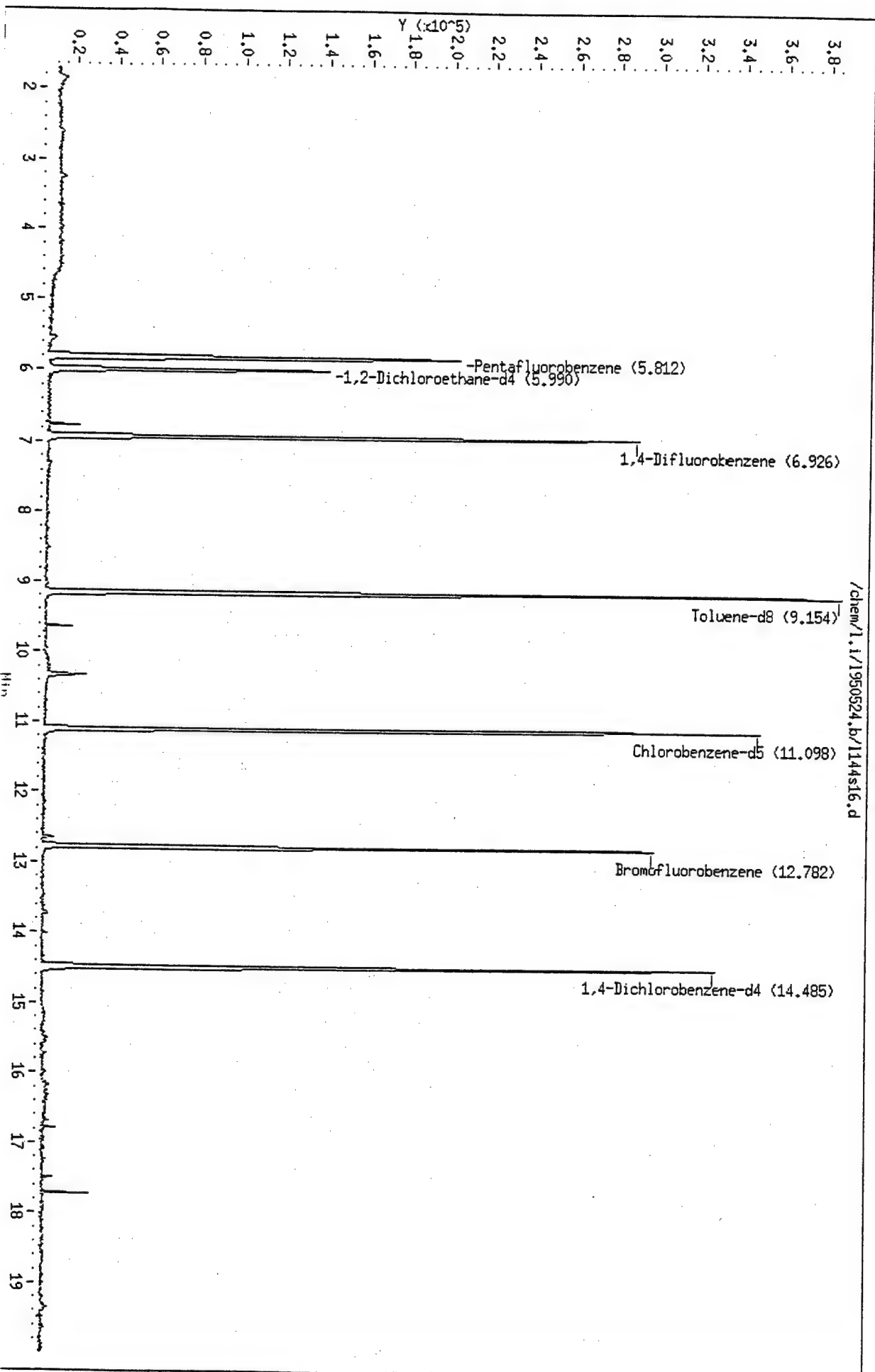
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184063	92034	368136	187187	1.69
24 1,4-Difluorobenzene	239653	119826	479306	248092	3.52
38 Chlorobenzene-d5	191926	95963	383852	196909	2.60
48 1,4-Dichlorobenzene-	101540	50770	203080	94414	-7.02

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.81	-0.15
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.00
38 Chlorobenzene-d5	11.11	10.61	11.61	11.11	0.00
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.48	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144s16.d  
Date: 25-MAY-1995 03:47  
Client ID:  
Sample Info: 9505714-06A-8260M/1X  
Purge Volume: 5.0  
Column phase: 30m, 1hp5ms, 0.25u df

Instrument: 1.1  
Operator: JC  
Column diameter: 0.25





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-07

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/09/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-003-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 12:12:00  
DATE RECEIVED: 05/19/95

PARAMETER	ANALYTICAL DATA		MDL*	UNITS
	RESULTS			
Benzene	ND	1	ug/L	
Bromobenzene	ND	1	ug/L	
Bromochloromethane	ND	1	ug/L	
Bromodichloromethane	ND	1	ug/L	
Bromoform	ND	1	ug/L	
Bromomethane	ND	2	ug/L	
n-Butylbenzene	ND	1	ug/L	
sec-Butylbenzene	ND	1	ug/L	
tert-Butylbenzene	ND	1	ug/L	
Carbon tetrachloride	ND	1	ug/L	
Chlorobenzene	ND	1	ug/L	
Chlorodibromomethane	ND	1	ug/L	
Chloroethane	ND	4	ug/L	
Chloroform	4	1	ug/L	
Chloromethane	ND	1	ug/L	
2-Chlorotoluene	ND	1	ug/L	
4-Chlorotoluene	ND	1	ug/L	
1,2-Dibromo-3-chloropropane	ND	1	ug/L	
1,2-Dibromoethane	ND	1	ug/L	
Dibromomethane	ND	1	ug/L	
1,2-Dichlorobenzene	ND	1	ug/L	
1,3-Dichlorobenzene	ND	1	ug/L	
1,4-Dichlorobenzene	ND	1	ug/L	
Dichlorodifluoromethane	ND	1	ug/L	
1,1-Dichloroethane	ND	1	ug/L	
1,2-Dichloroethane	ND	1	ug/L	
1,1-Dichloroethene	ND	1	ug/L	
1,2-Dichloropropane	ND	1	ug/L	
1,3-Dichloropropane	ND	1	ug/L	
2,2-Dichloropropane	ND	1	ug/L	
1,1-Dichloropropene	ND	1	ug/L	
Ethylbenzene	ND	1	ug/L	
Hexachlorobutadiene	ND	1	ug/L	
Isopropylbenzene	ND	1	ug/L	
p-Isopropyltoluene	ND	1	ug/L	
Methylene chloride	3	1	ug/L	
Naphthalene	ND	1	ug/L	
n-Propylbenzene	ND	1	ug/L	

METHOD: 8260 Water, Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-07

Operational Tech

SAMPLE ID: 026-003-RB

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	MDL*	
Styrene	ND	1	ug/L
1,1,1,2-Tetrachloroethane	ND	1	ug/L
1,1,2,2-Tetrachloroethane	ND	1	ug/L
Tetrachloroethene	ND	1	ug/L
Toluene	ND	1	ug/L
1,2,3-Trichlorobenzene	ND	1	ug/L
1,2,4-Trichlorobenzene	ND	1	ug/L
1,1,1-Trichloroethane	ND	1	ug/L
1,1,2-Trichloroethane	ND	1	ug/L
Trichloroethene	ND	1	ug/L
Trichlorofluoromethane	ND	1	ug/L
1,2,3-Trichloropropane	ND	1	ug/L
1,2,4-Trimethylbenzene	ND	1	ug/L
1,3,5-Trimethylbenzene	ND	1	ug/L
Vinyl chloride	ND	1	ug/L
Xylenes (total)	ND	1	ug/L
1,2-Dichloroethene (total)	ND	1	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50	96	76	114
Toluene-d8	50	98	88	110
4-Bromofluorobenzene	50	96	86	115

ANALYZED BY: JC

DATE/TIME: 05/25/95 04:16:00

METHOD: 8260 Water, Volatile Organics

NOTES: \* - Method Detection Limit

NA - Not Analyzed

ND - Not Detected

D - Surr. diluted out.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.





Certificate of Analysis No. H9-9505714-07

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 026-003-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 12:12:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	25	ug/L
Benzo(g,h,i)Perylene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-07

Operational Tech

SAMPLE ID: 026-003-RB

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-07

Operational Tech

SAMPLE ID: 026-003-RB

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	98	35	114
2-Fluorobiphenyl	50 ug/L	87	43	116
Terphenyl-d14	50 ug/L	108	33	141
Phenol-d5	75 ug/L	77	10	110
2-Fluorophenol	75 ug/L	78	21	110
2,4,6-Tribromophenol	75 ug/L	107	10	123

ANALYZED BY: LH

DATE/TIME: 06/01/95 14:04:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/1.i/1950524.b/l144s17.d  
Report Date: 25-May-1995 07:02

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950524.b/l144s17.d

Lab Smp Id:

Inj Date : 25-MAY-1995 04:16

Operator : JC

Inst ID: 1.i

Smp Info : 9505714-07A-8260W/1X

Misc Info : L144W2/L144B03/L144CW3

Comment :

Method : /chem/1.i/1950524.b/l8260w.m

Meth Date : 24-May-1995 20:31 jimmy

Quant Type: ISTD

Cal Date : 24-MAY-1995 20:04

Cal File: l144cw3.d

Als bottle: 27

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
=====	====	==	=====	=====	=====	=====	=====	
18 Chloroform	83.00	5.244	5.241	(0.900)	14860	21	4 (a)	
9 Methylene Chloride	84.00	3.247	3.244	(0.558)	5222	16	3 (a)	
* 2 Pentafluorobenzene	168.00	5.823	5.820	(1.000)	197269	250		
* 24 1,4-Difluorobenzene	114.00	6.929	6.925	(1.000)	257102	250		
* 38 Chlorobenzene-d5	117.00	11.100	11.106	(1.000)	200649	250		
* 48 1,4-Dichlorobenzene-d4	152.00	14.488	14.493	(1.000)	96272	250		
\$ 19 1,2-Dichloroethane-d4	102.00	6.002	5.990	(0.866)	19047	240	48	
\$ 32 Toluene-d8	98.00	9.157	9.154	(1.322)	274422	250	49	
\$ 47 Bromofluorobenzene	95.00	12.776	12.782	(1.844)	113515	240	48	

QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation (BLOQ).

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Job File ID: l144s17.d  
Lab Smp Id:

Calibration Date: 05/24/95  
Calibration Time: 2004

Analysis Type: VOA

Level: LOW

Quant Type: ISTD

Sample Type: WATER

Operator: JC

Method File: /chem/1.i/1950524.b/l18260w.m

Misc Info: L144W2/L144B03/L144CW3

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	197269	7.17
24 1,4-Difluorobenzene	239653	119826	479306	257102	7.28
38 Chlorobenzene-d5	191926	95963	383852	200649	4.54
48 1,4-Dichlorobenzene-	101540	50770	203080	96272	-5.19

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.82	0.05
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.05
38 Chlorobenzene-d5	11.11	10.61	11.61	11.10	-0.05
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.49	-0.04

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144s17.d  
Date : 25-MAY-1995 04:16

Client ID:

Sample Info: 9505714-07A-8260M/1X

Purge Volume: 5.0

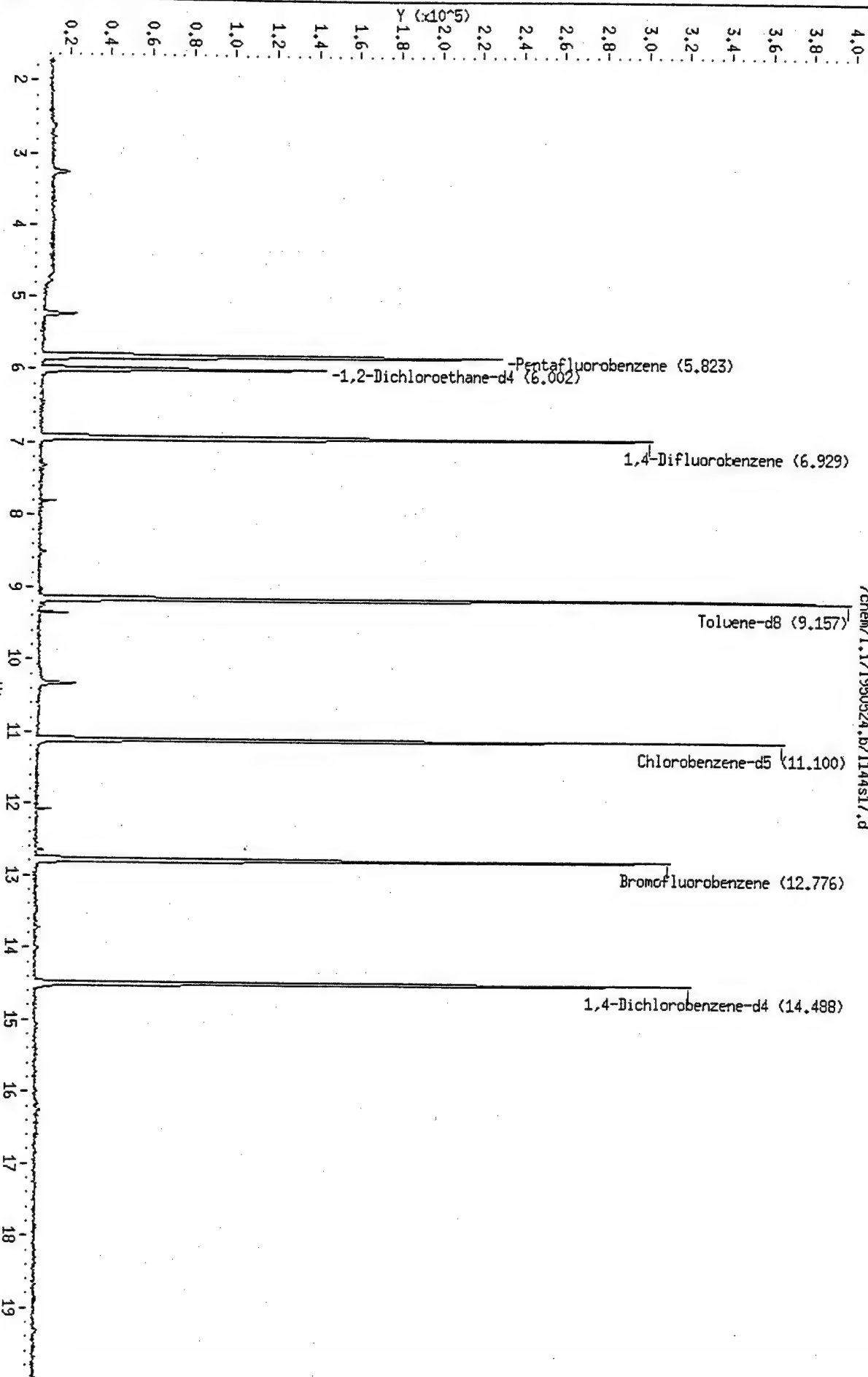
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950524.b/1144s17.d



Data File: /chem/1.i/1950524.b/1144s17.d

Page 5

Date: 25-MAY-1995 04:16

Client ID:

Instrument: 1.i

Sample Info: 9505714-07A-8260W/1X

Purge Volume: 5.0

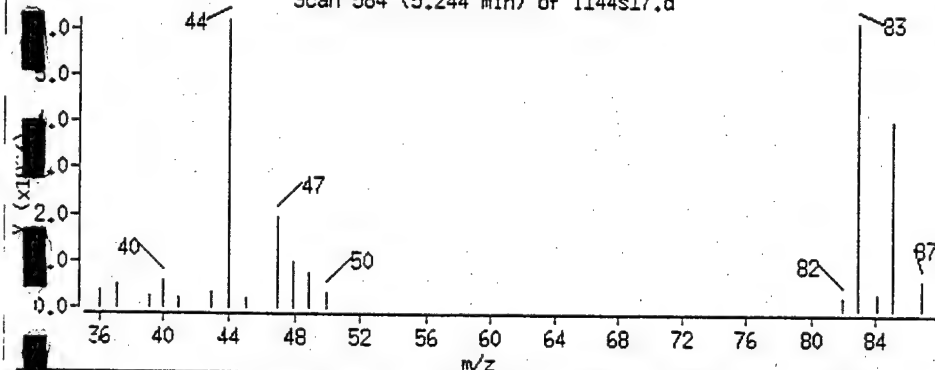
Operator: JC

Column phase: 30m,hp5ms,0.25u df

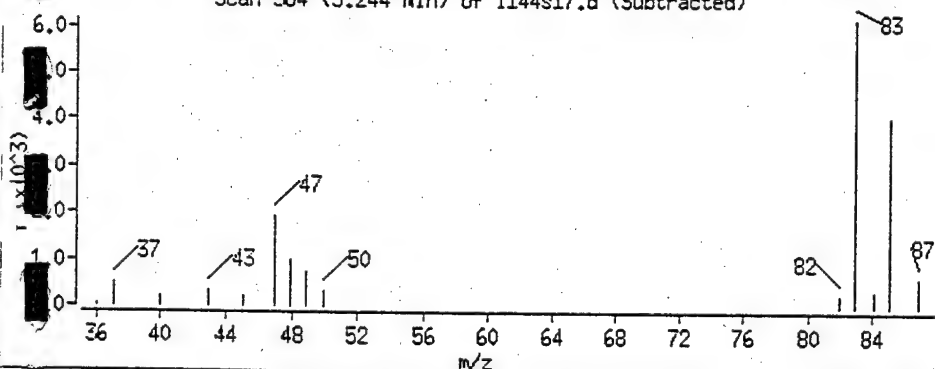
Column diameter: 0.25

18 Chloroform

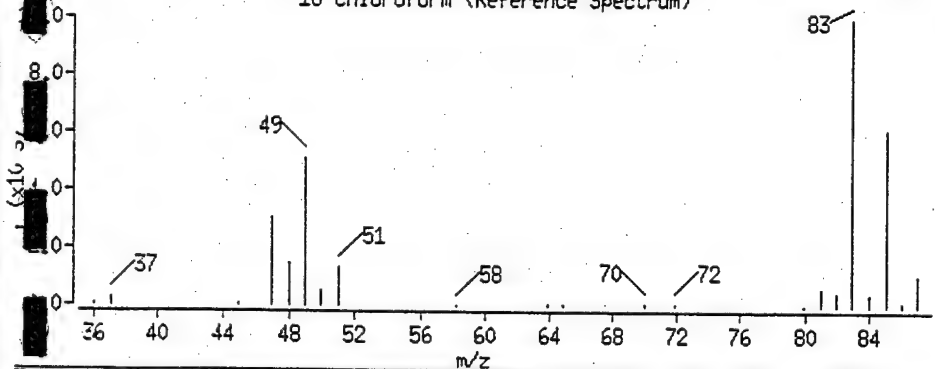
Scan 584 (5.244 min) of 1144s17.d



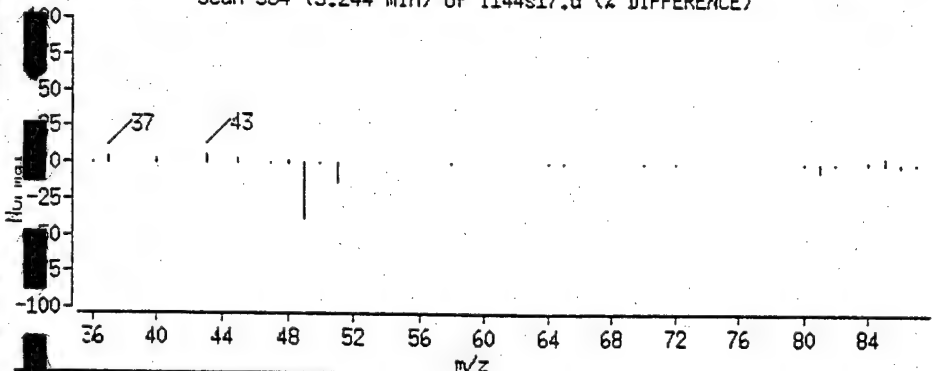
Scan 584 (5.244 min) of 1144s17.d (Subtracted)



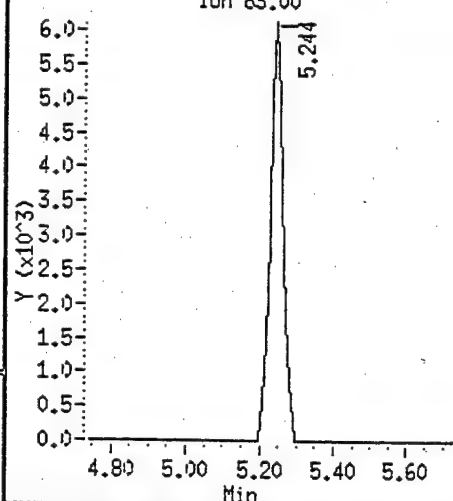
18 Chloroform (Reference Spectrum)



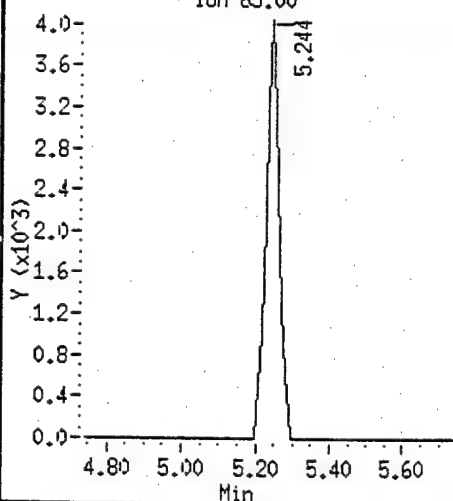
Scan 584 (5.244 min) of 1144s17.d (% DIFFERENCE)



Ion 83.00



Ion 85.00



Data File: /chem/1.i/1950524.b/1144s17.d

Date : 25-MAY-1995 04:16

Client ID:

Instrument: 1.i

Sample Info: 9505714-07A-8260W/1X

Purge Volume: 5.0

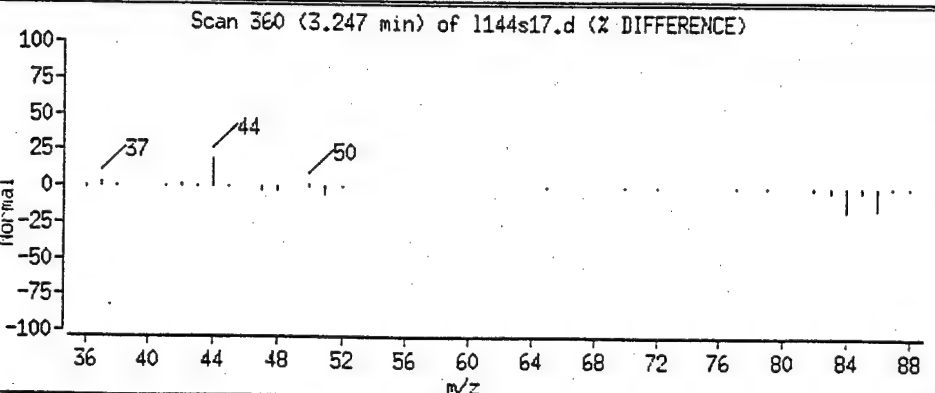
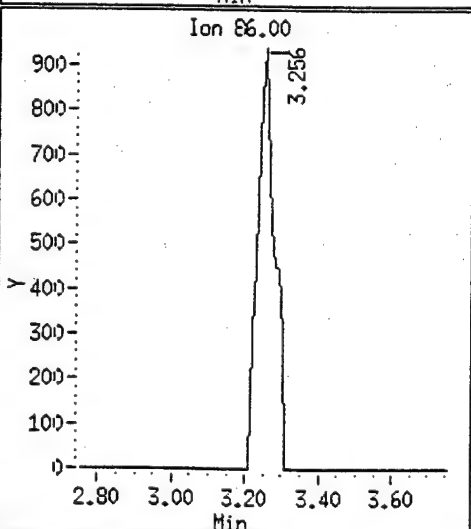
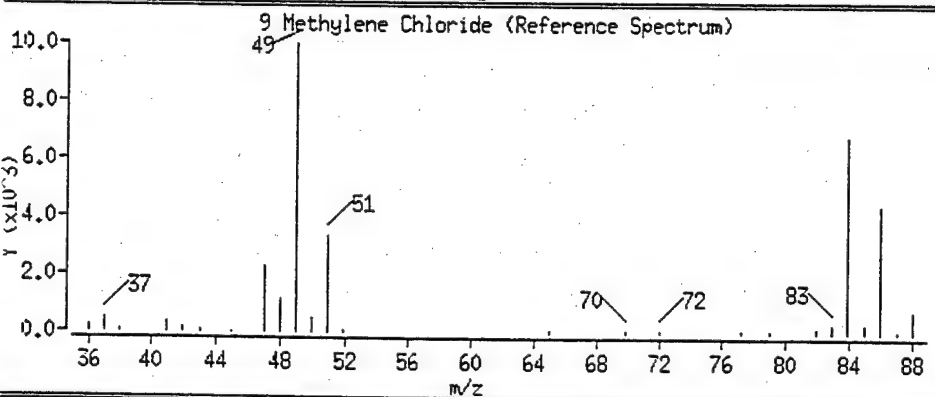
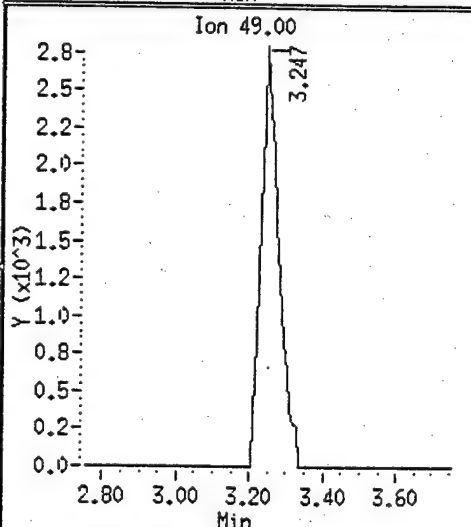
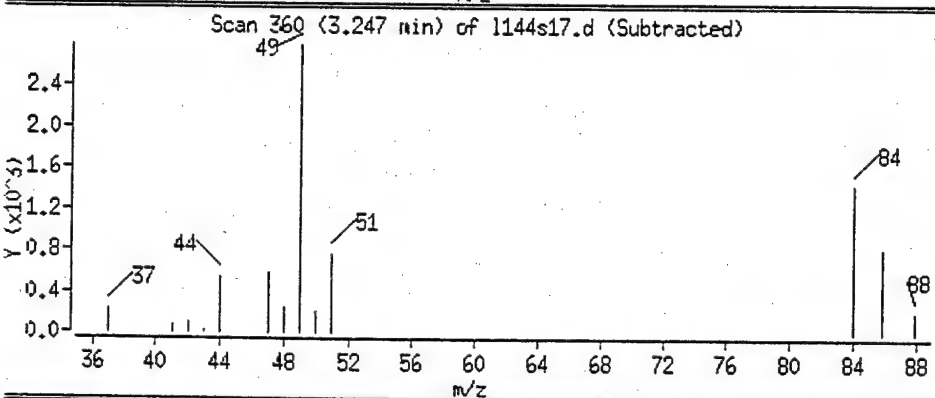
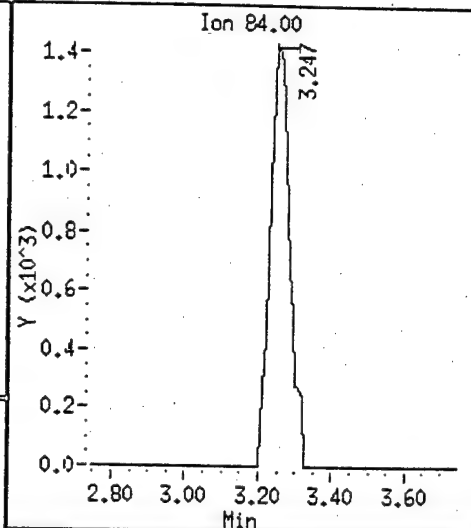
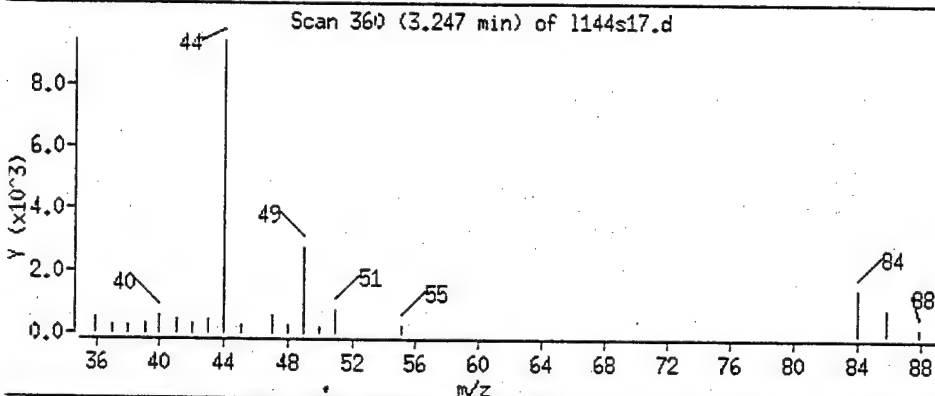
Operator: JC

Column phase: 30m,hp5ms,0.25u df

Column diameter: 0.25

9 Methylene Chloride

Page 6





SPL Houston Labs

Data file : /chem/h.i/h950601.b/h152s02.d

Lab Smp Id:

Inj Date : 01-JUN-1995 14:04

Operator : LH

Inst ID: h.i

Smp Info : 9505714-07B-8270W/1X

Misc Info : E142C1/J142B01/H152CC1

Comment :

Method : /chem/h.i/h950601.b/hclpw.m

Meth Date : 01-Jun-1995 13:56 liping

Quant Type: ISTD

Cal Date : 01-JUN-1995 09:55

Cal File: h152cc1.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL	
	----	--	-----	-----	-----	( ng)	( ug/L)	
69 Di-n-butylphthalate	149.00	8.816	8.816	(1.081)	159938	6	3(a)	
* 11 1,4-Dichlorobenzene-d4	152.00	3.791	3.791	(1.000)	281513	40		
* 32 Naphthalene-d8	136.00	4.953	4.952	(1.000)	859786	40		
* 48 Acenaphthene-d10	164.00	6.683	6.683	(1.000)	394217	40		
* 65 Phenanthrene-d10	188.00	8.153	8.152	(1.000)	447199	40		
* 76 Chrysene-d12	240.00	10.843	10.843	(1.000)	211334	40		
* 83 Perylene-d12	264.00	12.669	12.680	(1.000)	86253	40		
\$ 23 Nitrobenzene-d5	82.00	4.301	4.288	(0.868)	1073550	98	49	
\$ 41 2-Fluorobiphenyl	172.00	6.019	6.019	(0.901)	1079146	87	44	
\$ 72 Terphenyl-d14	244.00	9.788	9.788	(0.903)	650201	110	54	
\$ 4 Phenol-d5	99.00	3.542	3.530	(0.934)	1628471	120	58	
\$ 3 2-Fluorophenol	112.00	2.831	2.819	(0.747)	1237167	120	59	
\$ 61 2,4,6-Tribromophenol	329.70	7.489	7.489	(0.919)	176039	160	80	

QC Flag Legend

a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h152s02.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950601.b/hclpw.m  
Misc Info: E142C1/J142B01/H152CC1

Calibration Date: 06/01/95  
Calibration Time: 0955

Level: LOW  
Sample Type: WATER

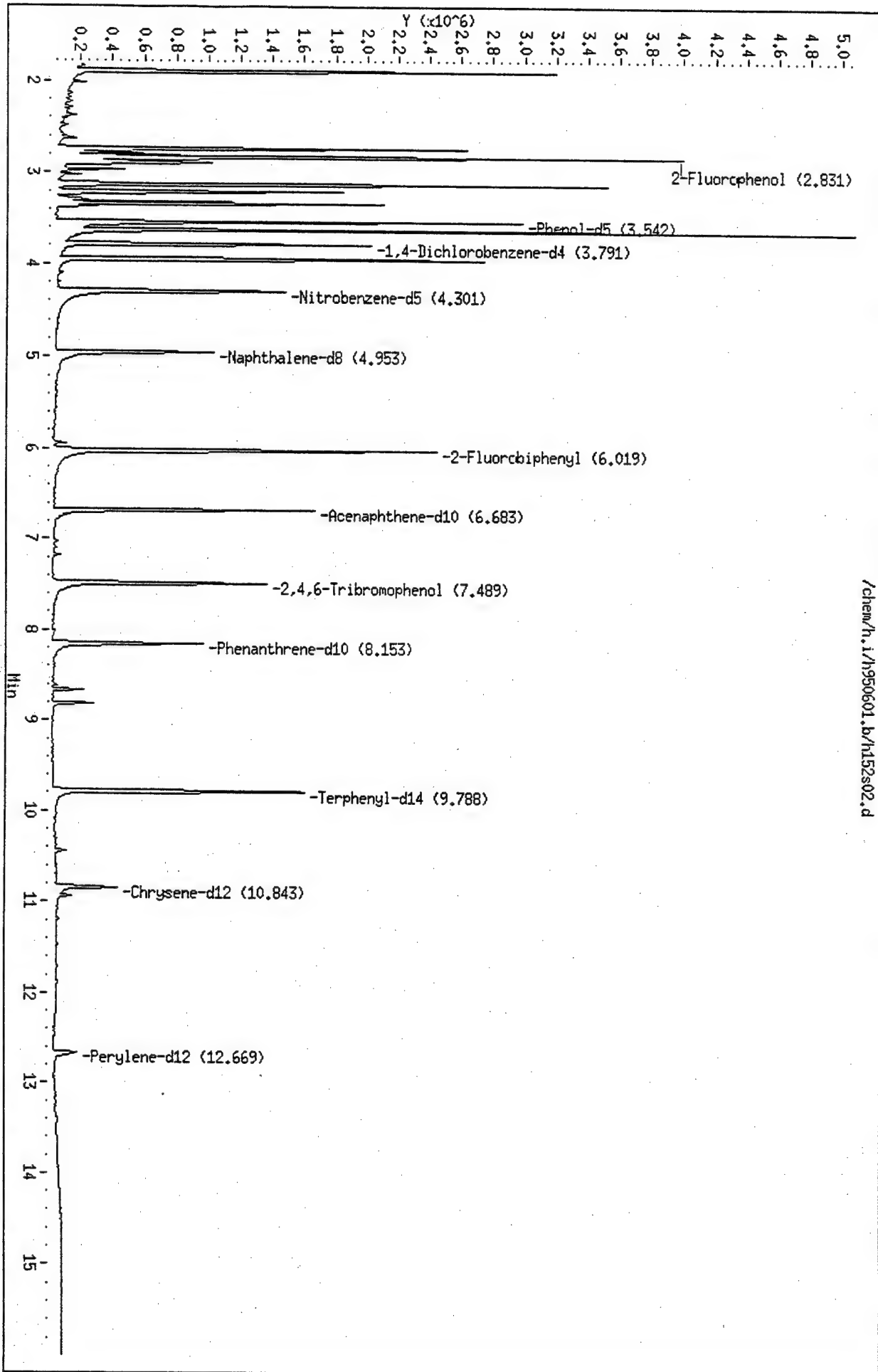
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	201362	100681	402724	281513	39.80
32 Naphthalene-d8	726976	363488	1453952	859786	18.27
48 Acenaphthene-d10	300745	150372	601490	394217	31.08
65 Phenanthrene-d10	319648	159824	639296	447199	39.90
76 Chrysene-d12	175171	87586	350342	211334	20.64
83 Perylene-d12	75734	37867	151468	86253	13.89

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.79	3.29	4.29	3.79	0.01
32 Naphthalene-d8	4.95	4.45	5.45	4.95	0.01
48 Acenaphthene-d10	6.68	6.18	7.18	6.68	0.01
65 Phenanthrene-d10	8.15	7.65	8.65	8.15	0.01
76 Chrysene-d12	10.84	10.34	11.34	10.84	0.00
83 Perylene-d12	12.68	12.18	13.18	12.67	-0.09

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950601.b/h152s02.d  
Date : 01-JUN-1995 14:04  
Client ID:  
Sample Info: 9505714-07B-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



Date: 01-JUN-1995 14:04

Client ID:

Instrument: h.i

Sample Info: 9505714-07B-8270W/1X

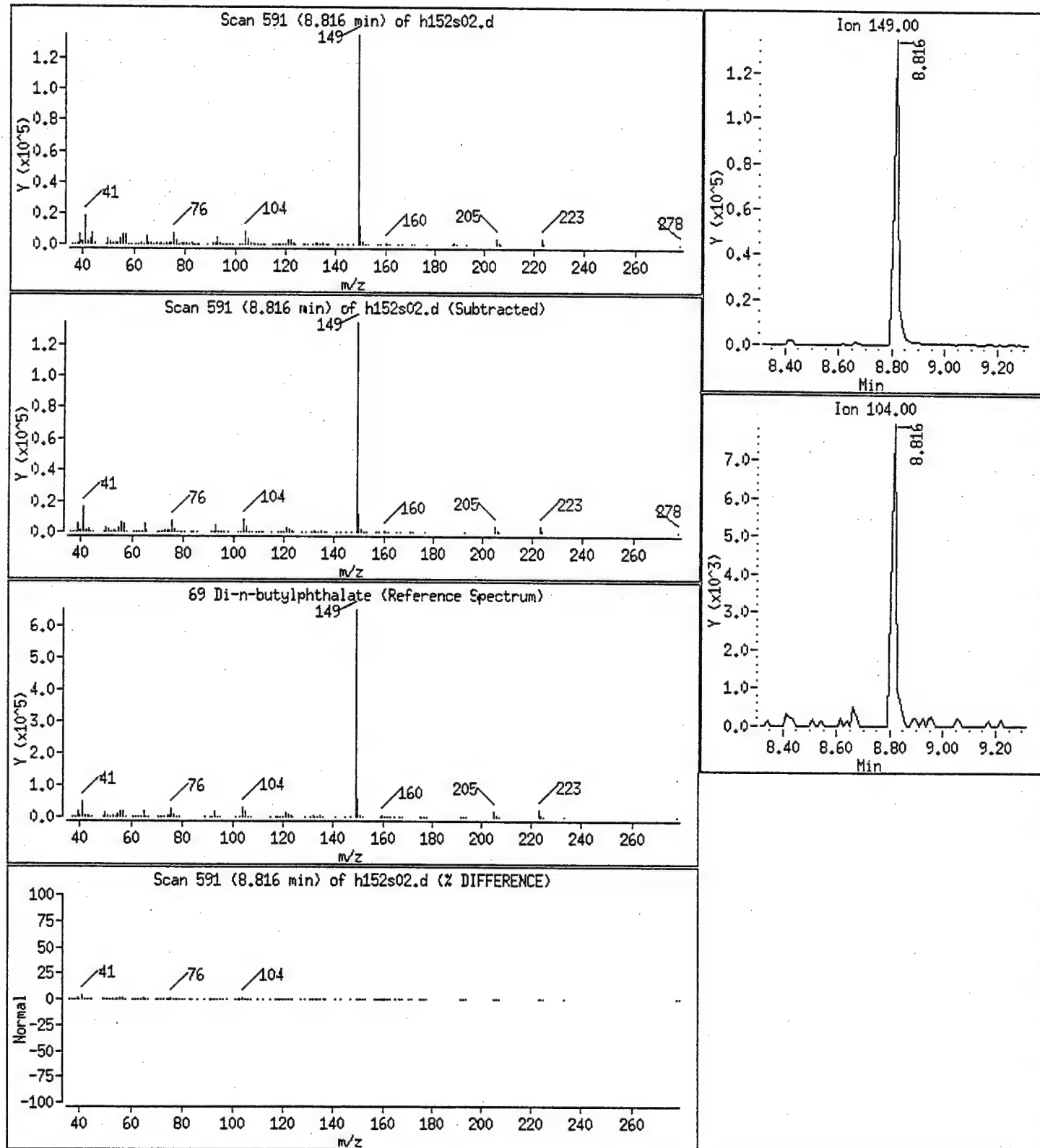
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

69 Di-n-butylphthalate





Certificate of Analysis No. H9-9505714-08

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-002-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 17:00:00  
DATE RECEIVED: 05/19/95

#### ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	1	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	1		µg/L

#### Surrogate

#### % Recovery

1,4-Difluorobenzene  
4-Bromofluorobenzene

109  
101

METHOD 5030/8020 \*\*\*

Analyzed by: YN

Date: 05/25/95

Cadmium, Total

ND

0.005

mg/L

METHOD 6010 \*\*\*

Analyzed by: RSC

Date: 05/31/95

Chromium, Total

0.011

0.002

mg/L

METHOD 7191 \*\*\*

Analyzed by: WFL

Date: 06/01/95

Mercury, Total

ND

0.0004

mg/L

METHOD 7470 \*\*\*

Analyzed by: PB

Date: 06/02/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505714-08

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-002-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 17:00:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Nickel, Total METHOD 6010 *** Analyzed by: RSC Date: 05/31/95	0.03	0.02	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/22/95	05/22/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 05/22/95	05/22/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/24/95	ND	0.004	mg/L

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-08

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-002-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 17:00:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA				
PARAMETER	RESULTS	PQL*	UNITS	
Dichlorodifluoromethane	ND	1	µg/L	
Chloromethane	ND	1	µg/L	
Vinyl chloride	ND	1	µg/L	
Bromomethane	ND	1	µg/L	
Chloroethane	ND	1	µg/L	
Trichlorofluoromethane	ND	1	µg/L	
1,1-Dichloroethene	ND	1	µg/L	
Methylene chloride	ND	1	µg/L	
Trans-1,2-Dichloroethene	ND	1	µg/L	
1,1-Dichloroethane	ND	1	µg/L	
Chloroform	ND	1	µg/L	
1,1,1-Trichloroethane	ND	1	µg/L	
Carbon tetrachloride	ND	1	µg/L	
1,2-Dichloroethane	11	1	µg/L	
2-Chloroethylvinyl ether	ND	1	µg/L	
Trichloroethene	ND	1	µg/L	
1,2-Dichloropropane	ND	1	µg/L	
Bromodichloromethane	ND	1	µg/L	
cis-1,3-Dichloropropene	ND	1	µg/L	
trans-1,3-Dichloropropene	ND	1	µg/L	
1,1,2-Trichloroethane	ND	1	µg/L	
Tetrachloroethene	ND	1	µg/L	
Dibromochloromethane	ND	1	µg/L	
Chlorobenzene	ND	1	µg/L	
Bromoform	ND	1	µg/L	
1,1,2,2-Tetrachloroethane	ND	1	µg/L	
1,3-Dichlorobenzene	ND	1	µg/L	
1,4-Dichlorobenzene	ND	1	µg/L	
1,2-Dichlorobenzene	ND	1	µg/L	

METHOD: 8010, Halogenated Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-08

Operational Tech

SAMPLE ID: 025-002-MW-GW1

SURROGATES  
1-Chloro-2-Fluorobenzene

% RECOVERY  
89

ANALYZED BY: JZL

DATE/TIME: 05/27/95 03:56:00

METHOD: 8010, Halogenated Volatile Organics

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-08

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: DANGB/Duluth SI  
SITE: Site 26 & 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-002-MW-GW1

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/18/95 17:00:00  
DATE RECEIVED: 05/19/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	25	ug/L
Benzo(g,h,i)Perylene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-08

Operational Tech

SAMPLE ID: 025-002-MW-GW1

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	25	ug/L
2-Nitrophenol	ND	5	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	25	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	5	ug/L
Phenanthrene	ND	25	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	5	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505714-08

Operational Tech

SAMPLE ID: 025-002-MW-GW1

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	79	35	114
2-Fluorobiphenyl	50 ug/L	95	43	116
Terphenyl-d14	50 ug/L	76	33	141
Phenol-d5	75 ug/L	67	10	110
2-Fluorophenol	75 ug/L	65	21	110
2,4,6-Tribromophenol	75 ug/L	111	10	123

ANALYZED BY: LH

DATE/TIME: 06/01/95 12:14:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Data File: /chem/h.i/h950601.b/h152s03.d  
Report Date: 01-Jun-1995 13:18

Page 1

SPL Houston Labs

Data file : /chem/h.i/h950601.b/h152s03.d

Lab Smp Id:

Inj Date : 01-JUN-1995 12:14

Operator : LH

Inst ID: h.i

Smp Info : 9505714-08B-8270W/1X

Misc Info : E142C1/J142B01/H152CC1

Comment :

Method : /chem/h.i/h950601.b/hclpw.m

Meth Date : 01-Jun-1995 11:17 jimmy

Quant Type: ISTD

Cal Date : 01-JUN-1995 09:55

Cal File: h152cc1.d

Als bottle: 3

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG						CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL	
-----	----	--	-----	-----	-----	( ng)	( ug/L)	-----
* 11 1,4-Dichlorobenzene-d4	152.00	3.782	3.791	(1.000)	198342	40		
* 32 Naphthalene-d8	136.00	4.943	4.952	(1.000)	597230	40		
* 48 Acenaphthene-d10	164.00	6.686	6.683	(1.000)	239871	40		
* 65 Phenanthrene-d10	188.00	8.155	8.152	(1.000)	199834	40		
* 76 Chrysene-d12	240.00	10.834	10.843	(1.000)	96279	40		
* 83 Perylene-d12	264.00	12.671	12.680	(1.000)	52992	40		
\$ 23 Nitrobenzene-d5	82.00	4.291	4.288	(0.868)	601815	79	40	
\$ 41 2-Fluorobiphenyl	172.00	6.022	6.019	(0.901)	718877	95	48	
\$ 72 Terphenyl-d14	244.00	9.779	9.788	(0.903)	210274	76	38	
\$ 4 Phenol-d5	99.00	3.533	3.530	(0.934)	1003265	100	50	
\$ 3 2-Fluorophenol	112.00	2.822	2.819	(0.746)	726589	98	49	
\$ 61 2,4,6-Tribromophenol	329.70	7.492	7.489	(0.919)	81598	170	83	

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h152s03.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950601.b/hclpw.m  
Misc Info: E142C1/J142B01/H152CC1

Calibration Date: 06/01/95  
Calibration Time: 0955

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	201362	100681	402724	198342	-1.50
32 Naphthalene-d8	726976	363488	1453952	597230	-17.85
48 Acenaphthene-d10	300745	150372	601490	239871	-20.24
65 Phenanthrene-d10	319648	159824	639296	199834	-37.48
76 Chrysene-d12	175171	87586	350342	96279	-45.04
83 Perylene-d12	75734	37867	151468	52992	-30.03

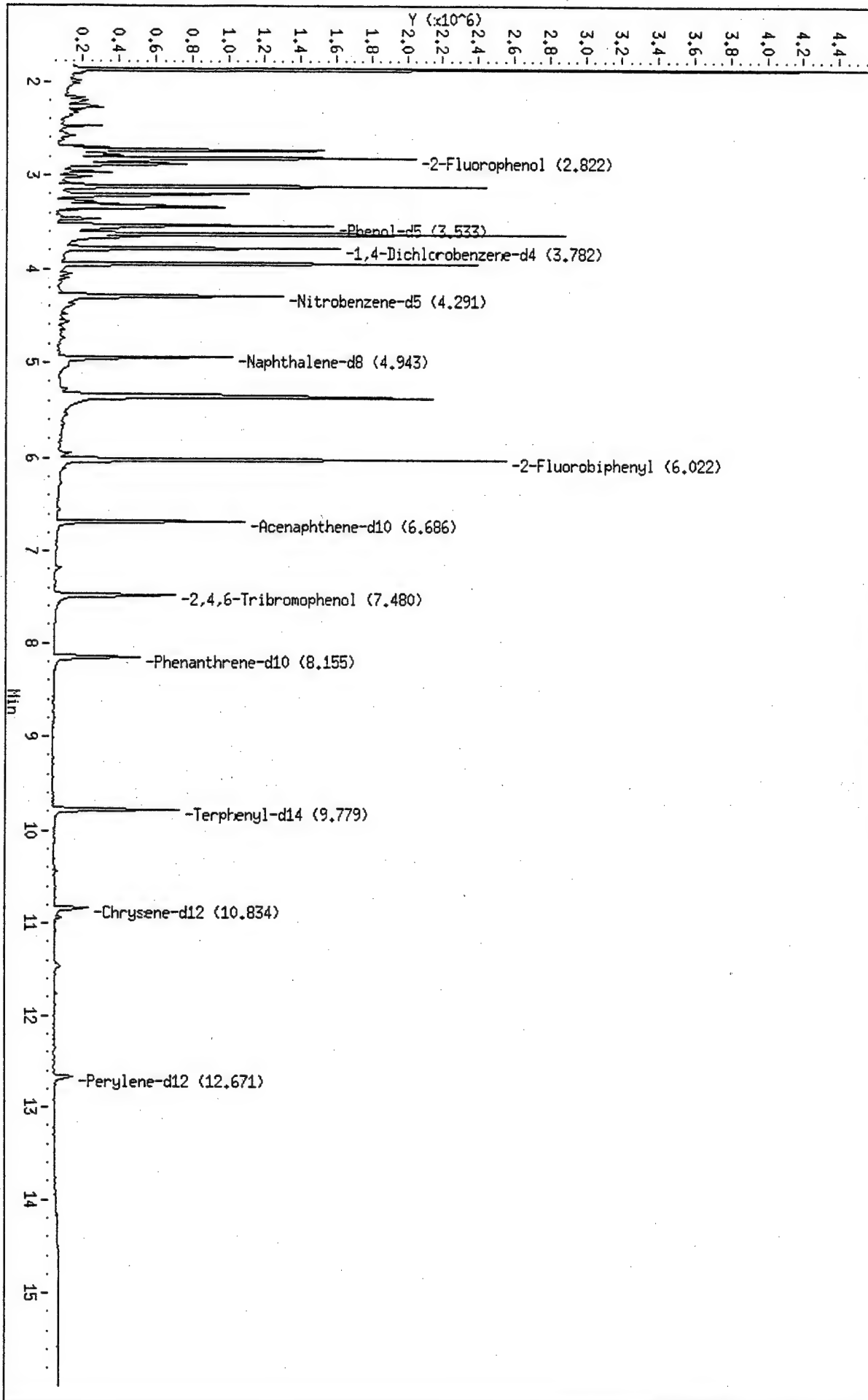
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.79	3.29	4.29	3.78	-0.23
32 Naphthalene-d8	4.95	4.45	5.45	4.94	-0.18
48 Acenaphthene-d10	6.68	6.18	7.18	6.69	0.04
65 Phenanthrene-d10	8.15	7.65	8.65	8.16	0.04
76 Chrysene-d12	10.84	10.34	11.34	10.83	-0.08
83 Perylene-d12	12.68	12.18	13.18	12.67	-0.07

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950601.b/h152s03.d  
Date : 01-JUN-1995 12:14  
Client ID:  
Sample Info: 9505714-08B-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950601.b/h152s03.d



=====
File Version: 3.2 <16C20>
File Name : 0505714-08C
Sample Number: SC ;W;1
Sample Name : YN
Instrument : HP\_J
Sampler : NONE
Vial : 0/0
Time : 05/25/95 18:54
Study : BTEXW;1
Channel : A
A/D mV Range : 1000

=====
Inlet Serial # : 1092573380
Data Acquisition Time: 05/25/95 18:36
Injection Time : 0.00 min.
Time : 17.33 min.
Sampling Rate : 2.0000 pts/sec
Data File : l:\data\tchchrom\btex\varj\J\_\_279.raw
Plot File : l:\data\tchchrom\btex\varj\J\_\_279.rst
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins
Base File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc
Data File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq
Volume : 2 ul
Injection Amount : 1.0000
Area Reject : 300.00
Dilution Factor : 1.00
=====

BTEX Area Percent Report

Table with 10 columns: Ret Time [min], Area [uV-sec], Height [uV], BL, Area/Amount, ISTD Resp Ratio, Amount ug/l, Component Name, RAW AMOUNT ug/L, RT SHIFT MIN. Rows include Benzene, 1,4-DIFLUOROBENZENE, TFT, 4-BROMOFLUOROBENZENE, 1,2,3-TMB, and various unidentified peaks.

Stored in ASCII File: l:\data\tchchrom\btex\varj\J\_\_279.TX0

# Chromatogram

mple Name : 0505714-08C

leName : l:\data\tchrom\btex\varj\J\_279.raw

thod : HP\_J.ins

art Time : 0.00 min

ale Factor : 1

End Time : 17.33 min

Plot Offset: 2 mV

Sample #: SC ;W:1

Date : 05/25/95 18:54

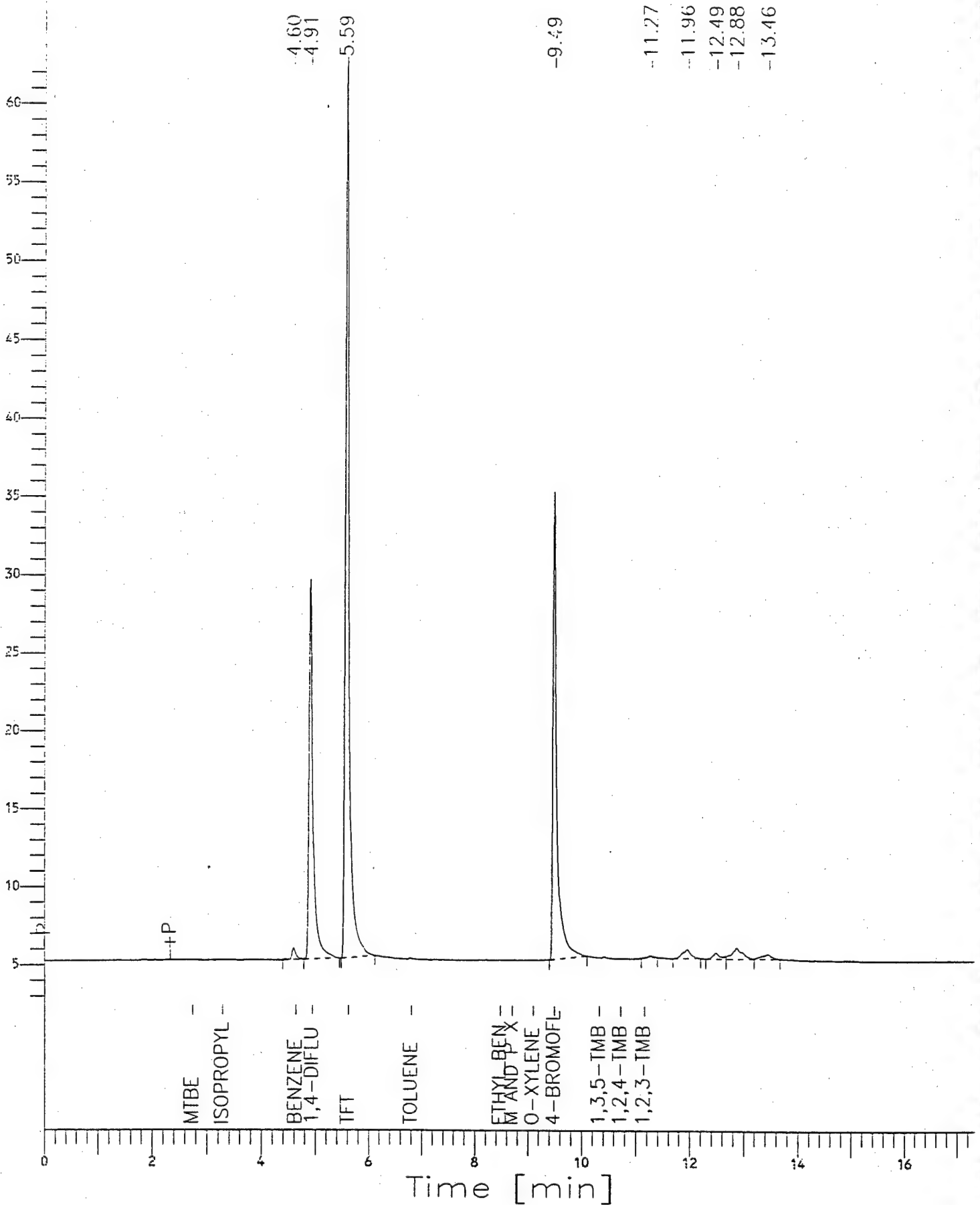
Time of Injection: 05/25/95 18:36

Low Point : 2.40 mV

Plot Scale: 60 mV

Page 1 of 1

High Point : 62.41 mV







HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 95 - 05 - 714

Approved for release by:

M. Scott Sample  
M. Scott Sample, Laboratory Director

Date: 6/9/95

Karen Satterfield  
Karen Satterfield, Project Manager

Date: 6/8/95



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901


# CASE NARRATIVE

WORK ORDER NO.: 9505714

Southern Petroleum Laboratories (SPL) is pleased to present the results of laboratory analyses to Operational Technologies. The samples were received at our laboratory on May 18, 1995 at a temperature of 3 degrees Celsius. The following is a brief narrative of the laboratory analyses.

For method 8260 all compounds are reported at 1 ppb with the exception of bromomethane and chloroethane. The detection limits of these two compounds are the MDL.

If I can be of further assistance or answer any questions, please do not hesitate to contact me at (713)660-0901 ext 103.

  
\_\_\_\_\_  
Karen Satterfield  
Project Manager

***QUALITY CONTROL***  
***DOCUMENTATION***

3A

## WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPLCase No.: 505714

SAS No.: \_\_\_\_\_

SDG NO.: 505714Matrix Spike - EPA Sample No.: 026-003-RB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC.
1,1-Dichloroethene	50.0	0	50	100	61-145
Trichloroethene	50.0	0	50	100	71-120
Benzene	50.0	0	48	96	76-127
Toluene	50.0	0	49	98	76-125
Chlorobenzene	50.0	0	48	96	75-130

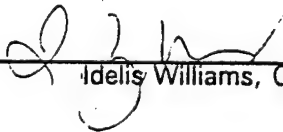
COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC#	% RPD	QC LIMIT =====	
1,1-Dichloroethene	50.0	48	96	4	14	61-145
Trichloroethene	50.0	49	98	2	14	71-120
Benzene	50.0	47	94	2	11	76-127
Toluene	50.0	47	94	4	13	76-125
Chlorobenzene	50.0	47	94	2	13	75-130

# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 5 outside limitsSpike Recovery: 0 out of 10 outside limits

FORM III VOA - 1

  
 Idelis Williams, Q C Officer

Data File: /chem/1.i/1950524.b/1144b03.d  
Report Date: 24-May-1995 22:25

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950524.b/1144b03.d

Sample Id:

Sample Date : 24-MAY-95 22:00

Operator : JC

Inst ID: 1.i

Sample Info : BLANK-8260W/1X

File Info : L144W2//L144CW3

Comment :

Method : /chem/1.i/1950524.b/18260w.m

Sample Date : 24-May-1995 20:31 jimmy

Quant Type: ISTD

Sample Date : 24-MAY-1995 20:04

Cal File: 1144cw3.d

Sample bottle: 14

Injection Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS					
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN FINAL ( ng) ( ug/L)
-----	----	----	--	-----	-----	-----	-----
2 Pentafluorobenzene	168.00	5.812	5.820	(1.000)	187139	250	
24 1,4-Difluorobenzene	114.00	6.926	6.925	(1.000)	241511	250	
Chlorobenzene-d5	117.00	11.098	11.106	(1.000)	192906	250	
1,4-Dichlorobenzene-d4	152.00	14.485	14.493	(1.000)	92545	250	
19 1,2-Dichloroethane-d4	102.00	5.990	5.990	(0.865)	18166	240	49
32 Toluene-d8	98.00	9.154	9.154	(1.322)	266347	250	51
Bromofluorobenzene	95.00	12.773	12.782	(1.844)	108967	240	49

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1144b03.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950524.b/18260w.m  
Misc Info: L144W2//L144CW3

Calibration Date: 05/24/95  
Calibration Time: 2004

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	187139	1.67
24 1,4-Difluorobenzene	239653	119826	479306	241511	0.78
38 Chlorobenzene-d5	191926	95963	383852	192906	0.51
48 1,4-Dichlorobenzene-	101540	50770	203080	92545	-8.86

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.81	-0.15
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.01
38 Chlorobenzene-d5	11.11	10.61	11.61	11.10	-0.08
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.48	-0.06

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144b03.d

Date: 24-MAY-95 22:00

Client ID:

Sample Info: BLANK-8260U/1X

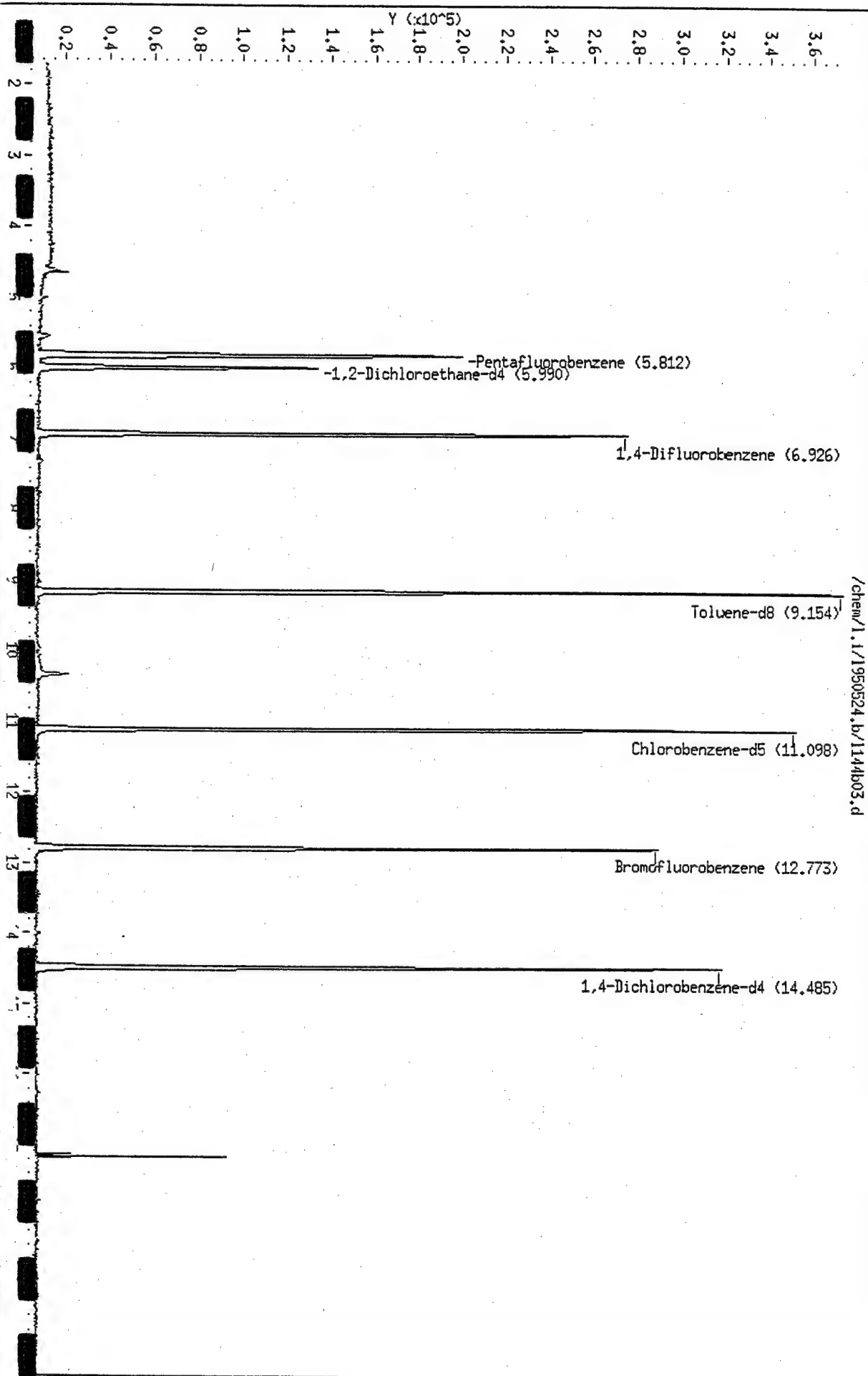
Purge Volume: 5.0

Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25



Data File: /chem/1.i/1950524.b/1144bf4.d

Page 1

Date : 24-MAY-95 19:22

Client ID:

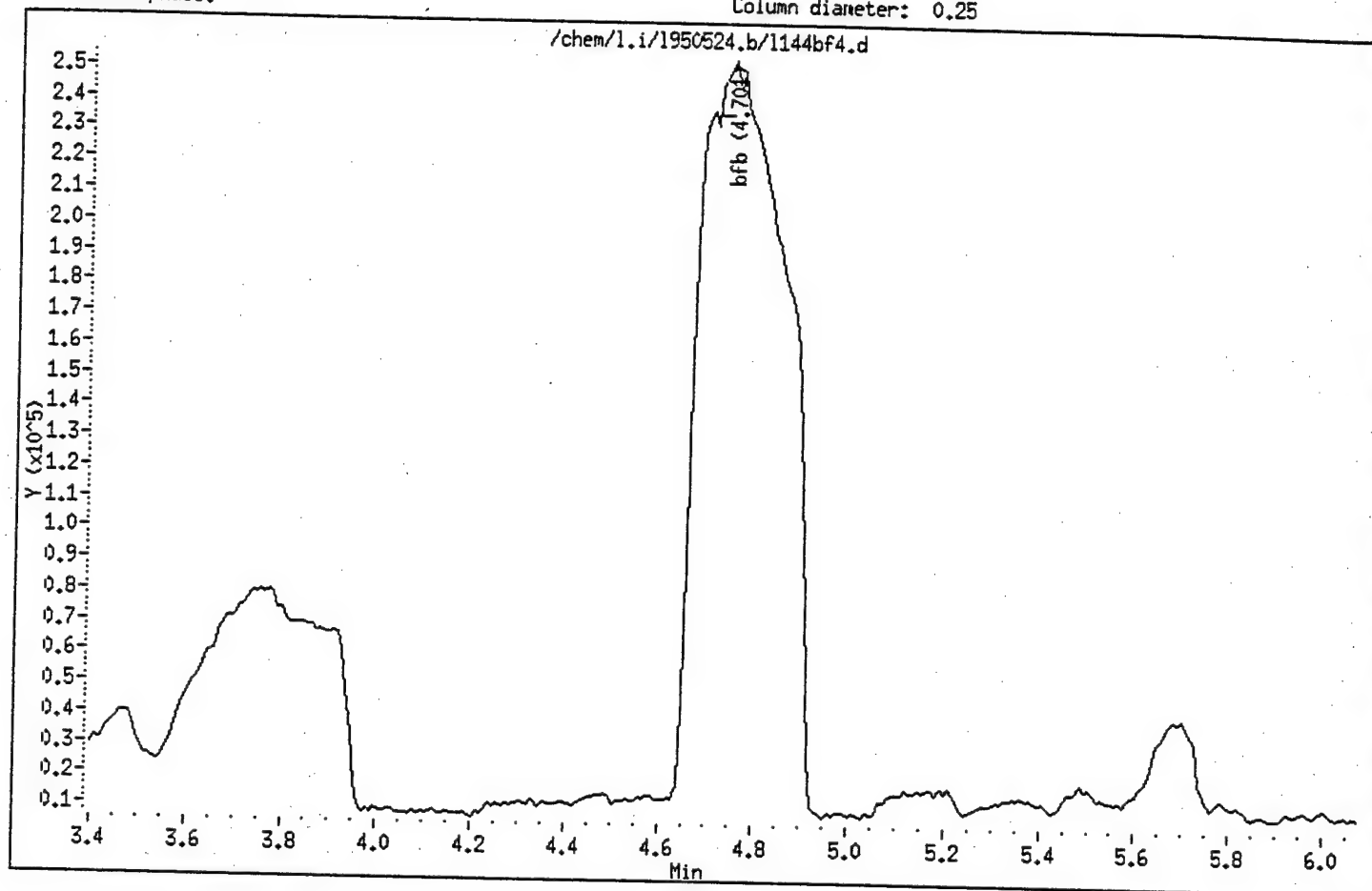
Instrument: 1.i

Sample Info: 50 NG BFB

Operator:

Column phase:

Column diameter: 0.25





Data File: /chem/1.i/1950524.b/1144bf4.d

Page 2

Date : 24-MAY-95 19:22

Client ID:

Instrument: 1.i

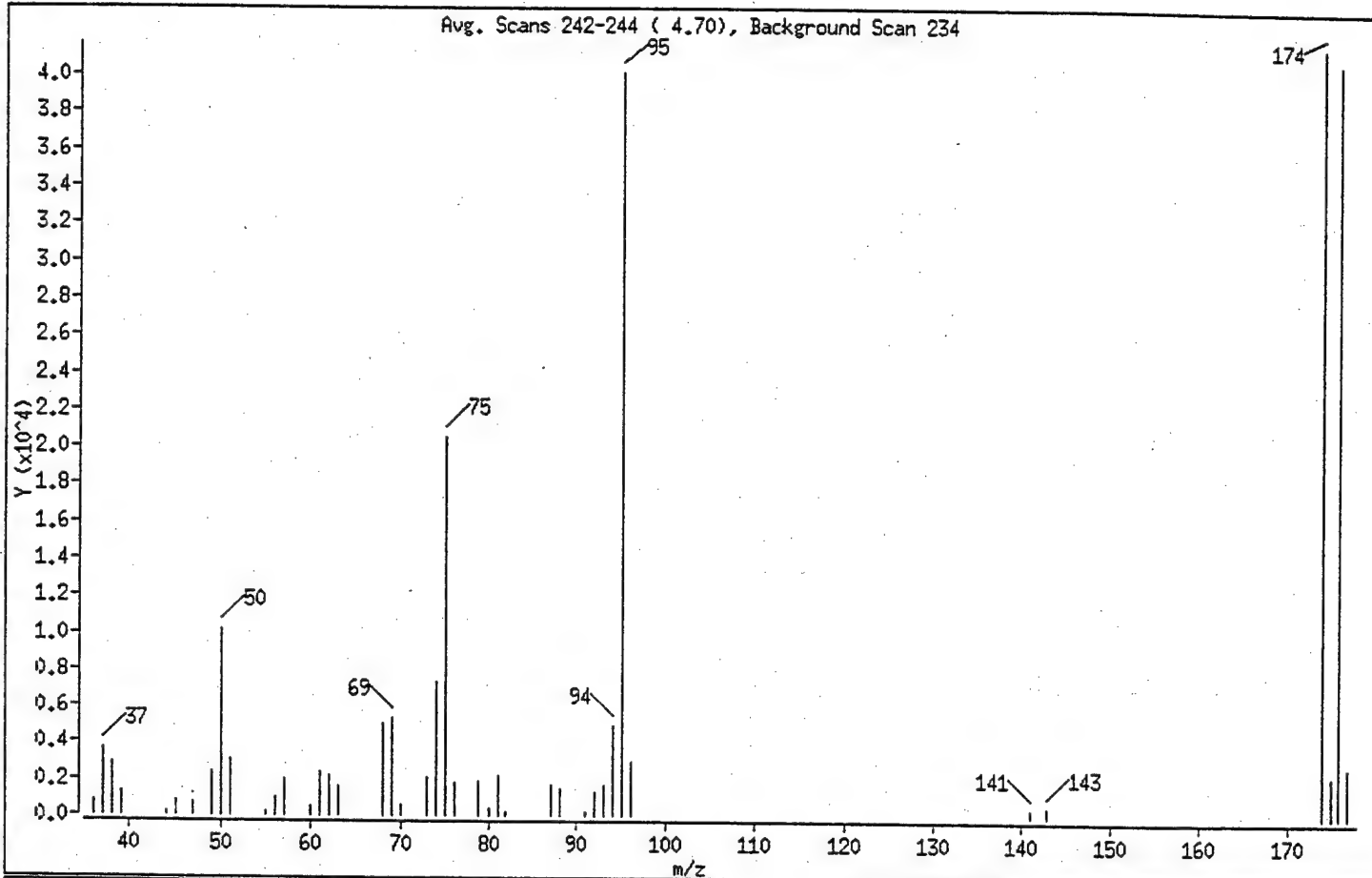
Sample Info: 50 NG BFB

Operator:

Column phase:

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	25.36
75	30.00 - 60.00% of mass 95	50.97
96	5.00 - 9.00% of mass 95	7.33
173	Less than 2.00% of mass 174	0.00 ( 0.00)
174	50.00 - 120.00% of mass 95	103.80
175	5.00 - 9.00% of mass 174	5.53 ( 5.33)
176	95.00 - 101.00% of mass 174	101.68 ( 97.95)
177	5.00 - 9.00% of mass 176	6.75 ( 6.64)

Data File: /chem/1.1/1950524.b/l144bf4.d

Page 3

Date : 24-MAY-95 19:22

Client ID:

Instrument: 1.1

Sample Info: 50 NG BFB

Operator:

Column phase:

Column diameter: 0.25

Data File: l144bf4.d

Spectrum : Avg. Scans 242-244 ( 4.70), Background Scan 234

Largest m/z: 173.95

Number of peaks: 42

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.95	833	55.95	988	75.05	20472	94.05	4885
37.05	3604	57.05	1931	76.05	1763	95.05	40168
38.05	2825	60.05	539	78.85	1907	96.05	2946
39.05	1299	60.95	2342	79.95	379	140.95	362
44.00	156	62.05	2126	80.95	2124	142.85	521
45.00	805	63.05	1592	81.85	174	173.95	41696
47.00	675	68.00	5046	87.00	1679	175.05	2222
49.00	2346	69.00	5309	88.00	1495	175.95	40840
50.00	10186	70.00	553	90.90	150	176.95	2713
51.00	3067	73.00	2065	92.00	1271		
54.95	206	74.05	7252	93.00	1680		

## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 22-MAR-1995 15:28  
 End Cal Date : 22-MAR-1995 17:22  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/1.i/1950322.b/18260w.m  
 Cal Date : 22-Mar-1995 17:49 jimmy  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/1.i/1950322.b/1081iw1.d  
 Level 2: /chem/1.i/1950322.b/1081iw2.d  
 Level 3: /chem/1.i/1950322.b/1081iw3.d  
 Level 4: /chem/1.i/1950322.b/1081iw4.d  
 Level 5: /chem/1.i/1950322.b/1081iw5.d

Compound	100 Level 1	250 Level 2	500 Level 3	750 Level 4	1000 Level 5	RRF	% RSD
1 Chloromethane	0.76177	0.72128	0.69719	0.67441	0.67004	0.70494	5.358
3 Vinyl Chloride	0.59622	0.55286	0.52514	0.49130	0.46295	0.52569	9.899
4 Bromomethane	0.47697	0.43193	0.43699	0.42903	0.41859	0.43870	5.112
5 Chloroethane	0.34545	0.34162	0.33705	0.32975	0.32280	0.33533	2.722
6 Trichlorofluoromethane	0.47357	0.52156	0.55996	0.56981	0.58923	0.54283	8.454
8 1,1-Dichloroethene	0.40958	0.41559	0.41335	0.40892	0.41184	0.41186	0.666
9 Methylene Chloride	0.48322	0.47544	0.47829	0.47530	0.47249	0.47695	0.852
11 trans-1,2-Dichloroethene	0.48164	0.47961	0.47852	0.48889	0.48199	0.48213	0.838
12 1,1-Dichloroethane	1.03799	1.03113	1.03061	1.02631	1.01669	1.02855	0.762
M 13 1,2-Dichloroethene (total)	0.49724	0.49844	0.49998	0.50487	0.49959	0.50002	0.582
16 cis-1,2-Dichloroethene	0.51285	0.51727	0.52145	0.52084	0.51719	0.51792	0.667
17 Bromochloromethane	0.25991	0.26488	0.26035	0.26137	0.25642	0.26059	1.165
18 Chloroform	0.96113	0.94872	0.95368	0.93858	0.93368	0.94716	1.175
20 1,1,1-Trichloroethane	0.52217	0.51445	0.51180	0.50409	0.50647	0.51180	1.390
21 1,2-Dichloroethane	0.83286	0.83585	0.83062	0.82841	0.81300	0.82815	1.075
22 Benzene	1.49126	1.48025	1.45491	1.43053	1.44620	1.46063	1.702
23 Carbon Tetrachloride	0.39652	0.40203	0.40418	0.40450	0.41347	0.40414	1.514
25 1,2-Dichloropropane	0.41738	0.42173	0.42179	0.40862	0.41563	0.41703	1.299
26 Trichloroethene	0.34851	0.33945	0.34285	0.34399	0.33896	0.34275	1.129
27 Bromodichloromethane	0.48781	0.49428	0.49366	0.48939	0.50181	0.49339	1.105
30 cis-1,3-Dichloropropene	0.55709	0.55567	0.57860	0.57148	0.58845	0.57446	2.001
31 trans-1,3-Dichloropropene	0.51163	0.53559	0.54539	0.54026	0.54957	0.53649	2.770
33 Toluene	0.80520	0.81364	0.81320	0.80581	0.81654	0.81088	0.626
34 1,1,2-Trichloroethane	0.29439	0.29531	0.28996	0.28548	0.28747	0.29052	1.470
36 Dibromochloromethane	0.38175	0.39620	0.40295	0.41275	0.41561	0.40185	3.397
37 Tetrachloroethene	0.36483	0.36231	0.35299	0.35869	0.35843	0.35945	1.248
39 Chlorobenzene	1.03103	1.03167	1.03273	1.03233	1.00728	1.02701	1.076

## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 22-MAR-1995 15:28  
 End Cal Date : 22-MAR-1995 17:22  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/1.i/1950322.b/18260w.m  
 Cal Date : 22-Mar-1995 17:49 jimmy  
 Curve Type : Average

Compound	100 Level 1	250 Level 2	500 Level 3	750 Level 4	1000 Level 5	RRF	% RSD
M 40 Xylene (Total)	0.54004	0.66417	0.66867	0.66384	0.66286	0.65992	1.728
41 Ethylbenzene	0.52587	0.52654	0.54030	0.54255	0.54397	0.53585	1.661
42 m,p-Xylene(s)	0.64283	0.66699	0.67089	0.66475	0.66325	0.66174	1.656
43 Bromoform	0.26128	0.28189	0.29823	0.30629	0.31234	0.29201	7.065
44 Styrene	1.01955	1.09351	1.13113	1.13805	1.13989	1.10443	4.622
45 o-Xylene	0.63444	0.65854	0.66422	0.66203	0.66207	0.65626	1.884
46 1,1,2,2-Tetrachloroethane	0.51501	0.53748	0.54162	0.51224	0.53821	0.52891	2.661
60 Dichlorodifluoromethane	0.67018	0.64801	0.65402	0.66131	0.66783	0.66027	1.408
74 2,2-Dichloropropane	0.58486	0.59050	0.59475	0.57859	0.57118	0.58398	1.606
75 1,2,3-Trichloropropane	0.48423	0.49631	0.49378	0.49657	0.49075	0.49233	1.036
78 1,1,1,2-Tetrachloroethane	0.35627	0.35959	0.35863	0.36132	0.36443	0.36005	0.848
80 2-Chlorotoluene	3.74958	3.91323	3.98445	4.04541	3.99748	3.93803	2.933
81 4-Chlorotoluene	1.47743	1.52373	1.56935	1.58954	1.57421	1.54685	2.968
84 1,2-Dibromoethane	0.34429	0.34052	0.33916	0.33602	0.34448	0.34089	1.051
87 Isopropylbenzene	2.89349	2.90827	2.91253	2.96153	2.91903	2.91897	0.876
88 N-Propylbenzene	6.56891	6.49736	6.45726	6.61133	6.43760	6.51449	1.234
89 1,3,5-Trimethylbenzene	2.52281	2.52915	2.55901	2.60760	2.55685	2.55508	1.311
90 1,2,4-Trimethylbenzene	2.58456	2.60031	2.62575	2.63909	2.57824	2.60559	1.006
91 tert-Butylbenzene	2.38278	2.38451	2.38024	2.43369	2.39398	2.39504	0.928
92 sec-Butylbenzene	2.58456	2.60031	2.62575	2.63909	2.57824	2.60559	1.006
93 p-Isopropyltoluene	2.49674	2.52419	2.57626	2.62662	2.59611	2.56398	2.065
94 n-Butylbenzene	2.66372	2.68132	2.78065	2.84023	2.81168	2.75552	2.863
95 1,3-Dichlorobenzene	1.59262	1.55169	1.57973	1.59976	1.56298	1.57736	1.270
96 1,4-Dichlorobenzene	1.62724	1.59414	1.61184	1.63353	1.61140	1.61563	0.953
97 1,2-Dichlorobenzene	1.52318	1.48869	1.52047	1.54229	1.50668	1.51626	1.317
98 1,2,4-Trichlorobenzene	0.85036	0.88682	0.95990	1.00768	0.99019	0.93899	7.214
106 1,3-Dichloropropane	0.80726	0.80855	0.80763	0.81172	0.80246	0.80752	0.412
108 1,2-Dibromo-3-Chloropropane	0.10181	0.09750	0.10464	0.10435	0.106'6	0.10305	3.492
112 Dibromomethane	0.36427	0.36874	0.37027	0.37349	0.36792	0.36894	0.913
114 Bromobenzene	0.91993	0.89187	0.88944	0.90537	0.89741	0.90080	1.368
115 1,1-Dichloropropene	0.68647	0.70097	0.70834	0.72235	0.70550	0.70472	1.838
116 Hexachlorobutadiene	0.45102	0.44617	0.46800	0.47735	0.46702	0.46191	2.798
117 Naphthalene	1.67144	1.88063	2.06328	2.19418	2.20563	2.00303	11.334
118 1,2,3-Trichlorobenzene	0.91339	0.98168	1.05912	1.11328	1.10767	1.03503	8.314

Report Date : 22-Mar-1995 17:49

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SPL Labs

INITIAL CALIBRATION DATA

Start Cal Date : 22-MAR-1995 15:28  
End Cal Date : 22-MAR-1995 17:22  
Quant Method : ISTD  
Origin : Included  
Target Version : 3.10  
Integrator : HP RTE  
Method file : /chem/1.i/1950322.b/18260w.m  
Cal Date : 22-Mar-1995 17:49 jimmy  
Curve Type : Average

Compound	100	250	500	750	1000	RRF	% RSD
	Level 1	Level 2	Level 3	Level 4	Level 5		
19 1,2-Dichloroethane-d4	0.07637	0.08118	0.08097	0.07816	0.07731	0.07880	2.758
32 Toluene-d8	1.06322	1.10086	1.11380	1.08328	1.09473	1.09118	1.752
47 Bromofluorobenzene	0.47273	0.47023	0.48760	0.48048	0.48155	0.47852	1.469

ata File: /chem/1.i/1950322.b/1081iw1.d  
port Date: 22-Mar-1995 17:50

Page 1

SPL Labs

ata file : /chem/1.i/1950322.b/1081iw1.d  
b Smp Id:

j Date : 22-MAR-1995 15:28  
erator : JC

Inst ID: 1.i

p Info : 20 UG-L STD-8260W/1X  
sc Info : L081W2//L081CW2

mmment :  
thod : /chem/1.i/1950322.b/18260w.m

th Date : 22-Mar-1995 17:50 jimmy

Quant Type: ISTD

l Date : 22-MAR-1995 15:57

Cal File: 1081iw2.d

s bottle: 2

Calibration Sample, Level: 1

l Factor: 1.000

egrator: HP RTE

Compound Sublist: 8260.sub

rget Version: 3.10

ounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
7 Bromochloromethane	128.00	5.234	5.234	(0.898)	17049	100	100
4 Bromomethane	94.00	2.122	2.122	(0.364)	31287	100	110
5 Chloroethane	64.00	2.193	2.193	(0.376)	22660	100	100
3 Chloroform	83.00	5.243	5.243	(0.899)	63045	100	100
1 Chloromethane	50.00	1.774	1.774	(0.304)	49968	100	110
0 Dichlorodifluoromethane	85.00	1.694	1.694	(0.290)	43960	100	100
2 1,1-Dichloroethane	63.00	4.173	4.173	(0.716)	68087	100	100
3 1,1-Dichloroethene	96.00	3.005	3.005	(0.515)	26866	100	99
6 cis-1,2-Dichloroethene	96.00	4.967	4.967	(0.852)	33640	100	99
1 trans-1,2-Dichloroethene	96.00	3.834	3.834	(0.657)	31593	100	100
3 1,2-Dichloroethene (total)	96.00				65233	200	200
4 2,2-Dichloropropane	77.00	5.154	5.154	(0.884)	38364	100	100
4 Methylene Chloride	84.00	3.246	3.246	(0.557)	31697	100	100
0 1,1,1-Trichloroethane	97.00	6.028	6.028	(0.869)	46960	100	100
Trichlorofluoromethane	100.90	2.550	2.550	(0.437)	31064	100	87
Vinyl Chloride	62.00	1.881	1.881	(0.323)	39109	100	110
Benzene	78.00	6.474	6.474	(0.933)	134113	100	100
Bromodichloromethane	83.00	7.687	7.687	(1.108)	43870	100	99
Carbon Tetrachloride	117.00	6.501	6.501	(0.937)	35660	100	98
1,2-Dibromoethane	107.00	10.228	10.228	(1.474)	30963	100	100
Dibromomethane	93.00	7.553	7.553	(1.295)	23894	100	99
1,2-Dichloroethane	62.00	6.117	6.117	(1.049)	54631	100	100
1,2-Dichloropropane	63.00	7.464	7.464	(1.076)	37536	100	100
1,1-Dichloropropene	75.00	6.313	6.313	(1.083)	45029	100	97
cis-1,3-Dichloropropene	75.00	8.543	8.543	(1.231)	50100	100	97
trans-1,3-Dichloropropene	75.00	9.167	9.167	(1.321)	46012	100	95
Toluene	92.00	9.256	9.256	(1.334)	72414	100	99
1,1,2-Trichloroethane	83.00	9.336	9.336	(1.346)	26475	100	100
Trichloroethene	130.00	7.490	7.490	(1.080)	31342	100	100

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
1 Bromoform	173.00	12.029	12.029	(1.084)	18963	100	89
2 Dibromochloromethane	129.00	9.960	9.960	(0.897)	27706	100	95
3 Chlorobenzene	112.00	11.146	11.146	(1.004)	74829	100	100
6 1,3-Dichloropropane	76.00	9.657	9.657	(1.656)	52952	100	100
4 Ethylbenzene	106.00	11.450	11.450	(1.031)	38166	100	98
5 Styrene	104.00	12.083	12.083	(1.088)	73996	100	92
78 1,1,1,2-Tetrachloroethane	131.00	11.200	11.200	(1.009)	25857	100	99
37 Tetrachloroethene	164.00	10.308	10.308	(0.928)	26478	100	100
6 Xylene	106.00	12.136	12.136	(1.093)	46046	100	97
7 m,p-Xylene(s)	106.00	11.610	11.610	(1.046)	93310	200	190
0 Xylene (Total)	106.00				139356	300	290
4 Bromobenzene	156.00	12.983	12.983	(0.897)	34444	100	100
1 Butylbenzene	91.00	15.213	15.213	(1.050)	99735	100	97
sec-Butylbenzene	105.00	14.107	14.107	(0.974)	96771	100	99
1 tert-Butylbenzene	119.00	14.089	14.089	(0.973)	89216	100	99
6 Chlorotoluene	91.00	13.340	13.340	(2.288)	245953	100	95
6 Chlorotoluene	91.00	13.447	13.447	(2.306)	96912	100	96
0 1,2-Dibromo-3-Chloropropane	75.00	15.784	15.784	(2.707)	6678	100	99
7 1,2-Dichlorobenzene	146.00	14.972	14.972	(1.034)	57031	100	100
3 1,3-Dichlorobenzene	146.00	14.401	14.401	(0.994)	59631	100	100
4 1,4-Dichlorobenzene	146.00	14.517	14.517	(1.002)	60927	100	100
5 Hexachlorobutadiene	225.00	17.736	17.736	(1.225)	16887	100	98
7 Isopropylbenzene	105.00	12.752	12.752	(0.881)	108338	100	99
Isopropyltoluene	119.00	14.642	14.642	(1.011)	93483	100	97
Naphthalene	128.00	17.353	17.353	(1.198)	62582	100	83
8 N-Propylbenzene	91.00	13.340	13.340	(0.921)	245953	100	100
4 1,2,2-Tetrachloroethane	83.00	12.484	12.484	(1.125)	37378	100	97
2 1,2,3-Trichlorobenzene	180.00	17.184	17.184	(1.187)	34199	100	88
1 1,2,4-Trichlorobenzene	180.00	17.790	17.790	(1.228)	31839	100	90
5 1,2,3-Trichloropropane	75.00	12.645	12.645	(2.168)	31763	100	98
2 1,2,4-Trimethylbenzene	105.00	14.107	14.107	(0.974)	96771	100	99
3 1,3,5-Trimethylbenzene	105.00	13.599	13.599	(0.939)	94459	100	99
2 Pentafluorobenzene	168.00	5.832	5.832	(1.000)	163987	250	
1 1,4-Difluorobenzene	114.00	6.937	6.937	(1.000)	224831	250	
1 Chlorobenzene-d5	117.00	11.102	11.102	(1.000)	181443	250	
1 1,4-Dichlorobenzene-d4	152.00	14.482	14.482	(1.000)	93605	250	
1 1,2-Dichloroethane-d4	102.00	6.001	6.001	(0.865)	6868	100	97
1 Toluene-d8	98.00	9.158	9.158	(1.320)	95618	100	97
1 Pentafluorobenzene	95.00	12.769	12.769	(1.841)	42514	100	99

ta File: /chem/1.i/1950322.b/1081iw1.d  
port Date: 22-Mar-1995 17:50

Page 3

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

strument ID: 1.i  
File ID: 1081iw1.d  
Smp Id:  
alysis Type: VOA  
ant Type: ISTD  
rator: JC  
thod File: /chem/1.i/1950322.b/18260w.m  
sc Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	163987	0.28
4 1,4-Difluorobenzene	224833	112416	449666	224831	0.00
8 Chlorobenzene-d5	182201	91100	364402	181443	-0.42
8 1,4-Dichlorobenzene-	98492	49246	196984	93605	-4.96

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.83	-0.16
4 1,4-Difluorobenzene	6.95	6.45	7.45	6.94	-0.13
8 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00
8 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	0.00

IA UPPER LIMIT = +100% of internal standard area.  
IA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950322.b/10811.w1.d  
Date : 22-MAR-1995 15:28

Client ID:

Sample Info: 20 UC-L STD-8260M/1X

Purge Volume: 5.0

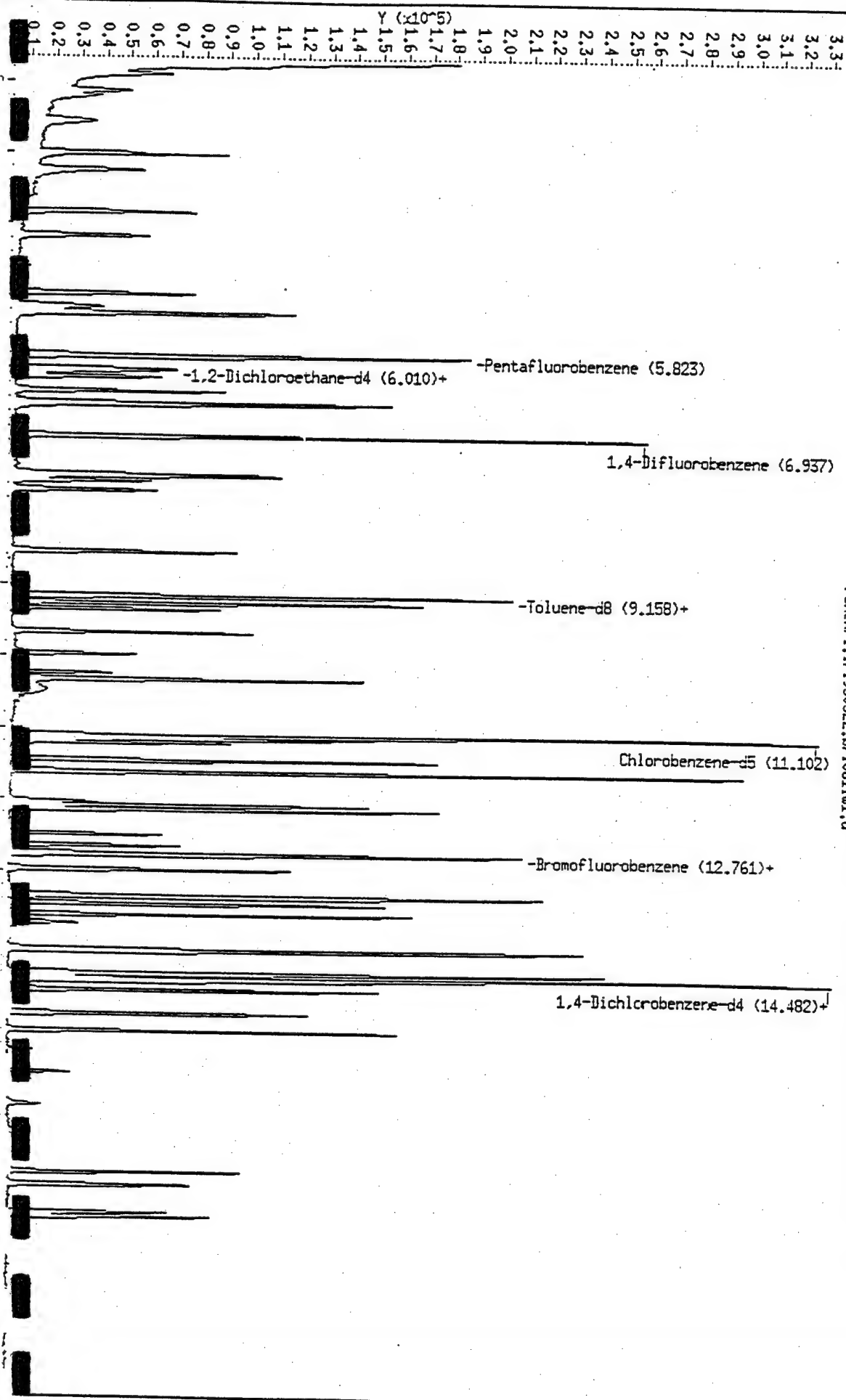
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950322.b/10811.w1.d



ta File: /chem/1.i/1950322.b/1081iw2.d  
port Date: 22-Mar-1995 17:51

SPL Labs

Volatiles by 624/8240  
ta file : /chem/1.i/1950322.b/1081iw2.d  
Smp Id:  
j Date : 22-MAR-1995 15:57  
erator : JC Inst ID: 1.i  
p Info : 50 UG-L STD-8260W/1X  
sc Info : L081W2//L081CW2  
nment :  
thod : /chem/1.i/1950322.b/18260w.m  
h Date : 22-Mar-1995 17:50 jimmy  
l Date : 22-MAR-1995 15:57  
s bottle: 3  
Factor: 1.000  
egrator: HP RTE  
rget Version: 3.10  
Quant Type: ISTD  
Cal File: 1081iw2.d  
Calibration Sample, Level: 2  
Compound Sublist: 8260.sub

ounds	QUANT SIG						AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE		CAL-AMT	ON-COL
							( ng)	( ng)
7 Bromochloromethane	128.00	5.243	5.243	(0.898)	43316		250	250
4 Bromomethane	94.00	2.122	2.122	(0.363)	70634		250	250
5 Chloroethane	64.00	2.194	2.194	(0.376)	55866		250	250
3 Chloroform	83.00	5.252	5.252	(0.899)	155146		250	250
1 Chloromethane	50.00	1.783	1.783	(0.305)	117953		250	260
0 Dichlorodifluoromethane	85.00	1.685	1.685	(0.289)	105970		250	240
1 1,1-Dichloroethane	63.00	4.182	4.182	(0.716)	168622		250	250
1 1,1-Dichloroethene	96.00	3.014	3.014	(0.516)	67963		250	250
1 cis-1,2-Dichloroethene	96.00	4.985	4.985	(0.853)	84590		250	250
1 trans-1,2-Dichloroethene	96.00	3.843	3.843	(0.658)	78431		250	250
3 1,2-Dichloroethene (total)	96.00				163021		500	500
4 2,2-Dichloropropane	77.00	5.163	5.163	(0.884)	96565		250	250
4 Methylene Chloride	84.00	3.246	3.246	(0.556)	77749		250	250
0 1,1,1-Trichloroethane	97.00	6.037	6.037	(0.869)	115665		250	250
1 Trichlorofluoromethane	100.90	2.559	2.559	(0.438)	85291		250	240
1 Vinyl Chloride	62.00	1.890	1.890	(0.324)	90410		250	260
1 Benzene	78.00	6.483	6.483	(0.933)	332809		250	250
1 Bromodichloromethane	83.00	7.687	7.687	(1.107)	111131		250	250
1 Carbon Tetrachloride	117.00	6.510	6.510	(0.937)	90390		250	250
1 1,2-Dibromoethane	107.00	10.228	10.228	(1.472)	76560		250	250
1 Dibromomethane	93.00	7.562	7.562	(1.295)	60301		250	250
1 1,2-Dichloroethane	62.00	6.126	6.126	(1.049)	136689		250	250
1 1,2-Dichloropropane	63.00	7.464	7.464	(1.074)	94818		250	250
1 1,1-Dichloropropene	75.00	6.322	6.322	(1.082)	114631		250	250
1 cis-1,3-Dichloropropene	75.00	8.552	8.552	(1.231)	129654		250	250
1 trans-1,3-Dichloropropene	75.00	9.176	9.176	(1.321)	120418		250	250
1 Toluene	92.00	9.256	9.256	(1.332)	182933		250	250
1 1,1,2-Trichloroethane	83.00	9.345	9.345	(1.345)	66396		250	250
1 Trichloroethene	130.00	7.499	7.499	(1.080)	76320		250	250

ounds	QUANT SIG			RESPONSE	AMOUNTS	
	MASS	RT	EXP RT REL RT		CAL-AMT ( ng)	ON-COL ( ng)
1 Bromoform	173.00	12.038	12.038 (1.084)	51361	250	240
6 Dibromochloromethane	129.00	9.970	9.970 (0.898)	72188	250	250
9 Chlorobenzene	112.00	11.147	11.147 (1.004)	187971	250	250
16 1,3-Dichloropropane	76.00	9.666	9.666 (1.655)	132223	250	250
1 Ethylbenzene	106.00	11.450	11.450 (1.031)	95937	250	240
4 Styrene	104.00	12.083	12.083 (1.088)	199238	250	250
78 1,1,1,2-Tetrachloroethane	131.00	11.209	11.209 (1.010)	65517	250	250
37 Tetrachloroethene	164.00	10.308	10.308 (0.928)	66014	250	250
9 m-Xylene	106.00	12.136	12.136 (1.093)	119986	250	250
2 m,p-Xylene(s)	106.00	11.619	11.619 (1.047)	243052	500	500
10 Xylene (Total)	106.00			363038	750	750
4 Bromobenzene	156.00	12.984	12.984 (0.897)	87842	250	250
4 n-Butylbenzene	91.00	15.213	15.213 (1.050)	264089	250	240
2 sec-Butylbenzene	105.00	14.107	14.107 (0.974)	256110	250	250
1 tert-Butylbenzene	119.00	14.089	14.089 (0.973)	234855	250	250
0 o-Chlorotoluene	91.00	13.340	13.340 (2.284)	639938	250	250
1 m-Chlorotoluene	91.00	13.447	13.447 (2.302)	249179	250	250
8 1,2-Dibromo-3-Chloropropane	75.00	15.784	15.784 (2.702)	15945	250	240
7 1,2-Dichlorobenzene	146.00	14.972	14.972 (1.034)	146624	250	240
5 1,3-Dichlorobenzene	146.00	14.402	14.402 (0.994)	152829	250	240
5 1,4-Dichlorobenzene	146.00	14.517	14.517 (1.002)	157010	250	250
6 Hexachlorobutadiene	225.00	17.737	17.737 (1.225)	43944	250	240
17 Isopropylbenzene	105.00	12.761	12.761 (0.881)	286441	250	250
3 Isopropyltoluene	119.00	14.642	14.642 (1.011)	248613	250	250
7 Naphthalene	128.00	17.353	17.353 (1.198)	185227	250	230
8 n-Propylbenzene	91.00	13.340	13.340 (0.921)	639938	250	250
5 1,1,2,2-Tetrachloroethane	83.00	12.484	12.484 (1.124)	97930	250	250
3 1,2,3-Trichlorobenzene	180.00	17.184	17.184 (1.187)	96688	250	240
8 1,2,4-Trichlorobenzene	180.00	17.790	17.790 (1.228)	87345	250	240
5 1,2,3-Trichloropropane	75.00	12.645	12.645 (2.165)	81163	250	250
0 1,2,4-Trimethylbenzene	105.00	14.107	14.107 (0.974)	256110	250	250
1 1,3,5-Trimethylbenzene	105.00	13.599	13.599 (0.939)	249101	250	250
2 Pentafluorobenzene	168.00	5.841	5.841 (1.000)	163532	250	
4 1,4-Difluorobenzene	114.00	6.947	6.947 (1.000)	224833	250	
3 Chlorobenzene-d5	117.00	11.102	11.102 (1.000)	182201	250	
1 1,4-Dichlorobenzene-d4	152.00	14.482	14.482 (1.000)	98492	250	
9 1,2-Dichloroethane-d4	102.00	6.010	6.010 (0.865)	18251	250	260
2 Fluene-d8	98.00	9.158	9.158 (1.318)	247509	250	250
7 Bromofluorobenzene	95.00	12.779	12.779 (1.840)	105724	250	240

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
b File ID: 1081iw2.d  
b Smp Id:  
Analysis Type: VOA  
Ant Type: ISTD  
erator: JC  
thod File: /chem/1.i/1950322.b/18260w.m  
sc Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND =====	STANDARD =====	AREA LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
2 Pentafluorobenzene	163532	81766	327064	163532	0.00
24 1,4-Difluorobenzene	224833	112416	449666	224833	0.00
38 Chlorobenzene-d5	182201	91100	364402	182201	0.00
48 1,4-Dichlorobenzene-	98492	49246	196984	98492	0.00

COMPOUND =====	STANDARD =====	RT LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
2 Pentafluorobenzene	5.84	5.34	6.34	5.84	0.00
24 1,4-Difluorobenzene	6.95	6.45	7.45	6.95	0.00
38 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00
48 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	0.00

IA UPPER LIMIT = +100% of internal standard area.  
IA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950322.b/10811w2.d

Date : 22-MAR-1995 15:57

Client ID:

Sample Info: 50 UG-L STD-8260M/1X

Purge Volume: 5.0

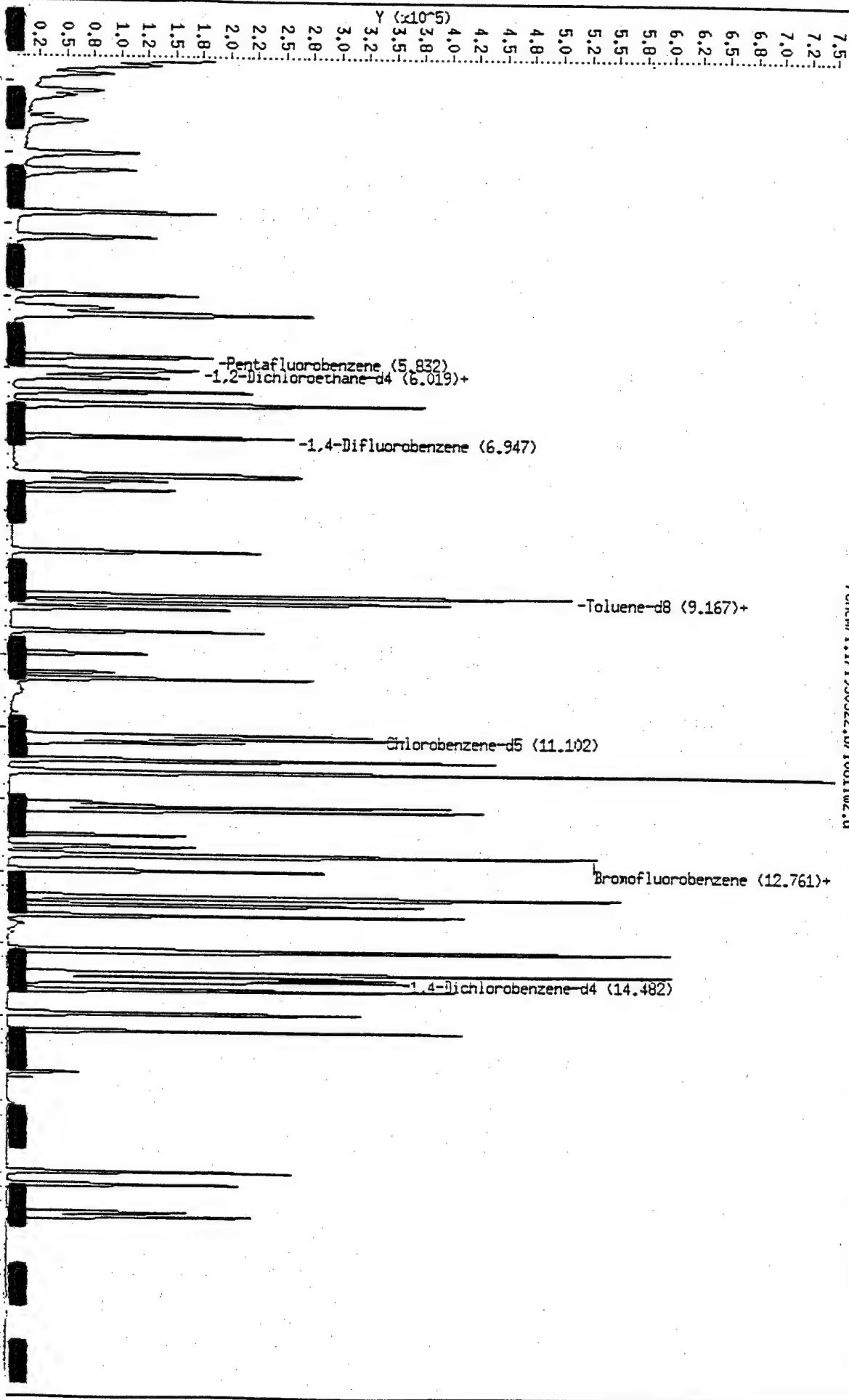
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950322.b/10811w2.d



ta File: /chem/1.i/1950322.b/1081iw3.d  
port Date: 22-Mar-1995 17:51

Page 1

SPL Labs

Volatiles by 624/8240

ta file : /chem/1.i/1950322.b/1081iw3.d

b Smp Id:

j Date : 22-MAR-1995 16:25

erator : JC

Inst ID: 1.i

p Info : 100 UG-L STD-8260W/1X

sc Info : L081W2//L081CW2

ment :

thod : /chem/1.i/1950322.b/18260w.m

h Date : 22-Mar-1995 17:51 jimmy

l Date : 22-MAR-1995 15:57

s bottle: 4

. Factor: 1.000

egrator: HP RTE

get Version: 3.10

Quant Type: ISTD

Cal File: 1081iw2.d

Calibration Sample, Level: 3

Compound Sublist: 8260.sub

ounds	QUANT SIG			RESPONSE	AMOUNTS	
	MASS	RT	EXP RT REL RT		CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----
Bromochloromethane	128.00	5.233	5.233 (0.898)	85590	500	500
Bromomethane	94.00	2.121	2.121 (0.364)	143660	500	500
Chloroethane	64.00	2.192	2.192 (0.376)	110805	500	500
Chloroform	83.00	5.251	5.251 (0.901)	313520	500	500
Chloromethane	50.00	1.782	1.782 (0.306)	229199	500	490
Dichlorodifluoromethane	85.00	1.684	1.684 (0.289)	215007	500	500
1,1-Dichloroethane	63.00	4.172	4.172 (0.716)	338812	500	500
1,1-Dichloroethene	96.00	3.013	3.013 (0.517)	135889	500	500
cis-1,2-Dichloroethene	96.00	4.975	4.975 (0.853)	171425	500	500
trans-1,2-Dichloroethene	96.00	3.833	3.833 (0.657)	157312	500	500
1,2-Dichloroethene (total)	96.00			328737	1000	1000
2,2-Dichloropropane	77.00	5.162	5.162 (0.885)	195523	500	510
Methylene Chloride	84.00	3.245	3.245 (0.556)	157236	500	500
1,1,1-Trichloroethane	97.00	6.045	6.045 (0.870)	232267	500	500
Trichlorofluoromethane	100.90	2.558	2.558 (0.439)	184087	500	520
Vinyl Chloride	62.00	1.889	1.889 (0.324)	172640	500	500
Benzene	78.00	6.482	6.482 (0.933)	660275	500	500
Bromodichloromethane	83.00	7.685	7.685 (1.107)	224034	500	500
Carbon Tetrachloride	117.00	6.508	6.508 (0.937)	183426	500	500
1,2-Dibromoethane	107.00	10.236	10.236 (1.474)	153917	500	500
Dibromomethane	93.00	7.561	7.561 (1.297)	121725	500	500
1,2-Dichloroethane	62.00	6.125	6.125 (1.050)	273066	500	500
1,2-Dichloropropane	63.00	7.462	7.462 (1.074)	191420	500	500
1,1-Dichloropropene	75.00	6.321	6.321 (1.084)	232864	500	500
cis-1,3-Dichloropropene	75.00	8.550	8.550 (1.231)	262581	500	500
trans-1,3-Dichloropropene	75.00	9.175	9.175 (1.321)	247511	500	510
Toluene	92.00	9.255	9.255 (1.333)	369048	500	500
1,1,2-Trichloroethane	83.00	9.344	9.344 (1.345)	131589	500	500
Trichloroethene	130.00	7.498	7.498 (1.080)	155595	500	500

pounds	QUANT SIG				RESPONSE	AMOUNTS	
	MASS	RT	EXP RT	REL RT		CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
Bromoform	173.00	12.037	12.037	(1.084)	109402	500	510
Dibromochloromethane	129.00	9.968	9.968	(0.898)	147816	500	500
9 Chlorobenzene	112.00	11.145	11.145	(1.004)	378843	500	500
06 1,3-Dichloropropane	76.00	9.665	9.665	(1.658)	265508	500	500
Ethylbenzene	106.00	11.449	11.449	(1.031)	198202	500	500
Styrene	104.00	12.082	12.082	(1.088)	414939	500	510
78 1,1,1,2-Tetrachloroethane	131.00	11.208	11.208	(1.010)	131559	500	500
3 Tetrachloroethene	164.00	10.307	10.307	(0.928)	129488	500	490
p-Xylene	106.00	12.135	12.135	(1.093)	243660	500	510
2 m,p-Xylene(s)	106.00	11.618	11.618	(1.047)	492216	1000	1000
40 Xylene (Total)	106.00				735876	1500	1500
1 Bromobenzene	156.00	12.982	12.982	(0.897)	180427	500	490
n-Butylbenzene	91.00	15.212	15.212	(1.050)	564065	500	500
2 sec-Butylbenzene	105.00	14.106	14.106	(0.974)	532643	500	500
91 tert-Butylbenzene	119.00	14.088	14.088	(0.973)	482841	500	500
0 Chlorotoluene	91.00	13.339	13.339	(2.288)	1309881	500	500
0 Chlorotoluene	91.00	13.446	13.446	(2.306)	515922	500	510
08 1,2-Dibromo-3-Chloropropane	75.00	15.782	15.782	(2.707)	34400	500	510
97 1,2-Dichlorobenzene	146.00	14.971	14.971	(1.034)	308433	500	500
5 1,3-Dichlorobenzene	146.00	14.409	14.409	(0.995)	320454	500	500
5 1,4-Dichlorobenzene	146.00	14.516	14.516	(1.002)	326969	500	500
16 Hexachlorobutadiene	225.00	17.735	17.735	(1.225)	94935	500	510
87 Isopropylbenzene	105.00	12.759	12.759	(0.881)	590819	500	500
3 Isopropyltoluene	119.00	14.641	14.641	(1.011)	522605	500	500
1 Naphthalene	128.00	17.352	17.352	(1.198)	418544	500	520
38 N-Propylbenzene	91.00	13.339	13.339	(0.921)	1309881	500	500
46 1,2,2-Tetrachloroethane	83.00	12.483	12.483	(1.125)	198687	500	510
1 2,3-Trichlorobenzene	180.00	17.182	17.182	(1.187)	214847	500	510
1 1,2,4-Trichlorobenzene	180.00	17.798	17.798	(1.229)	194720	500	510
5 1,2,3-Trichloropropane	75.00	12.643	12.643	(2.168)	162330	500	500
1 2,4-Trimethylbenzene	105.00	14.106	14.106	(0.974)	532643	500	500
1 3,5-Trimethylbenzene	105.00	13.607	13.607	(0.940)	519106	500	500
2 Pentafluorobenzene	168.00	5.831	5.831	(1.000)	164374	250	
14 4-Difluorobenzene	114.00	6.945	6.945	(1.000)	226912	250	
lorobenzene-d5	117.00	11.101	11.101	(1.000)	183418	250	
1,4-Dichlorobenzene-d4	152.00	14.480	14.480	(1.000)	101427	250	
9 1,2-Dichloroethane-d4	102.00	6.009	6.009	(0.865)	36748	500	510
2 luene-d8	98.00	9.157	9.157	(1.318)	505469	500	510
omofluorobenzene	95.00	12.777	12.777	(1.840)	221286	500	510

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
b File ID: 1081iw3.d  
b Smp Id:

Calibration Date: 03/22/95  
Calibration Time: 1557

Analysis Type: VOA  
Ant Type: ISTD  
erator: JC

Level: LOW  
Sample Type: WATER

Method File: /chem/1.i/1950322.b/18260w.m  
sc Info: L081W2//L081CW2

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	164374	0.51
24 1,4-Difluorobenzene	224833	112416	449666	226912	0.92
38 Chlorobenzene-d5	182201	91100	364402	183418	0.67
48 1,4-Dichlorobenzene-	98492	49246	196984	101427	2.98

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.83	-0.17
24 1,4-Difluorobenzene	6.95	6.45	7.45	6.95	-0.02
38 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.01
48 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	-0.01

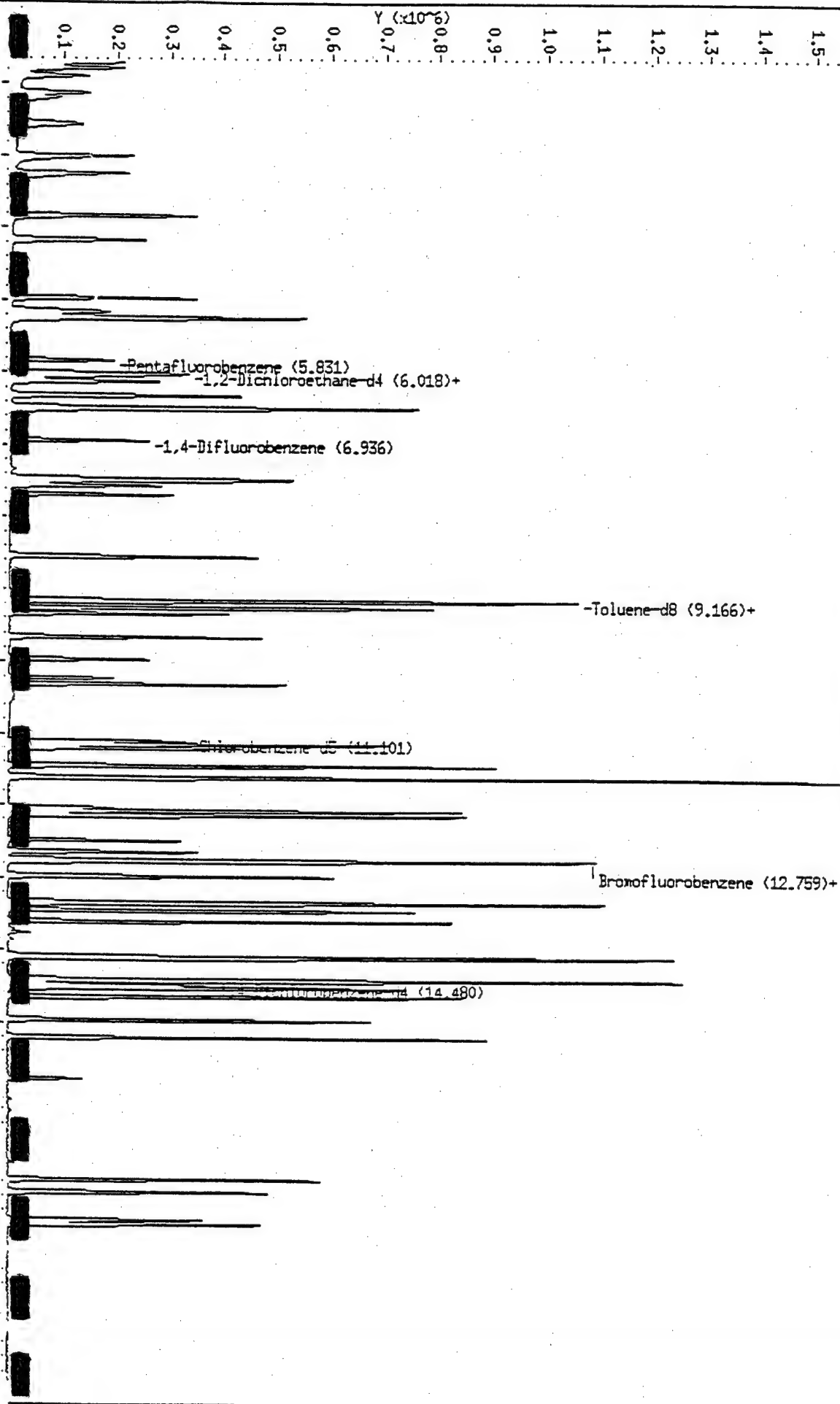
EA UPPER LIMIT = +100% of internal standard area.  
EA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950322.b/1081iw3.d  
Date : 22-MAR-1995 16:25  
Client ID:  
Sample Info: 100 UG-L STD-8260M/1X  
Purge Volume: 5.0  
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1  
Operator: JC  
Column diameter: 0.25

/chem/1.1/1950322.b/1081iw3.d



ta File: /chem/1.i/1950322.b/1081iw4.d  
port Date: 22-Mar-1995 17:51

SPL Labs

Volatiles by 624/8240

ta file : /chem/1.i/1950322.b/1081iw4.d  
b Smp Id:  
j Date : 22-MAR-1995 16:54  
erator : JC  
p Info : 150 UG-L STD-8260W/1X  
sc Info : L081W2//L081CW2  
mment :  
thod : /chem/1.i/1950322.b/18260w.m  
th Date : 22-Mar-1995 17:51 jimmy  
l Date : 22-MAR-1995 15:57  
s bottle: 5  
l Factor: 1.000  
egrator: HP RTE  
rget Version: 3.10

Inst ID: 1.i  
Quant Type: ISTD  
Cal File: 1081iw2.d  
Calibration Sample, Level: 4  
Compound Sublist: 8260.sub

ounds	QUANT SIG				AMOUNTS	
	MASS	RT	EXP RT	REL RT	CAL-AMT	ON-COL
	-----	----	-----	-----	( ng)	( ng)
7 Bromochloromethane	128.00	5.233	5.233	(0.898)	130192	750
4 Bromomethane	94.00	2.130	2.130	(0.365)	213704	750
5 Chloroethane	64.00	2.192	2.192	(0.376)	164249	750
8 Chloroform	83.00	5.251	5.251	(0.901)	467515	750
1 Chloromethane	50.00	1.782	1.782	(0.306)	335927	750
0 Dichlorodifluoromethane	85.00	1.693	1.693	(0.290)	329402	750
2 1,1-Dichloroethane	63.00	4.172	4.172	(0.716)	511212	750
3 1,1-Dichloroethene	96.00	3.013	3.013	(0.517)	203685	750
6 cis-1,2-Dichloroethene	96.00	4.974	4.974	(0.853)	259437	750
1 trans-1,2-Dichloroethene	96.00	3.842	3.842	(0.659)	243518	750
3 1,2-Dichloroethene (total)	96.00				502955	1500
4 2,2-Dichloropropane	77.00	5.162	5.162	(0.885)	288202	750
9 Methylene Chloride	84.00	3.245	3.245	(0.556)	236750	750
0 1,1,1-Trichloroethane	97.00	6.036	6.036	(0.869)	352865	750
6 Trichlorofluoromethane	100.90	2.558	2.558	(0.439)	283827	750
3 Vinyl Chloride	62.00	1.889	1.889	(0.324)	244719	750
2 Benzene	78.00	6.482	6.482	(0.933)	1001375	750
7 Bromodichloromethane	83.00	7.685	7.685	(1.107)	342574	750
3 Carbon Tetrachloride	117.00	6.508	6.508	(0.937)	283152	750
4 1,2-Dibromoethane	107.00	10.227	10.227	(1.472)	235217	750
2 Dibromomethane	93.00	7.561	7.561	(1.297)	186036	750
1 1,2-Dichloroethane	62.00	6.125	6.125	(1.050)	412636	750
6 1,2-Dichloropropane	63.00	7.462	7.462	(1.074)	286039	750
6 1,1-Dichloropropene	75.00	6.312	6.312	(1.083)	359806	750
0 cis-1,3-Dichloropropene	75.00	8.550	8.550	(1.231)	400039	750
1 trans-1,3-Dichloropropene	75.00	9.175	9.175	(1.321)	378184	750
3 Toluene	92.00	9.264	9.264	(1.334)	564071	750
4 1,1,2-Trichloroethane	83.00	9.344	9.344	(1.345)	199838	750
6 Trichloroethene	130.00	7.498	7.498	(1.080)	240797	750

Compounds	QUANT SIG			REL RT	RESPONSE	AMOUNTS	
	MASS	RT	EXP RT			CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
1 Bromoform	173.00	12.037	12.037	(1.084)	171974	750	790
1 Dibromochloromethane	129.00	9.968	9.968	(0.898)	231751	750	770
19 Chlorobenzene	112.00	11.154	11.154	(1.005)	579635	750	750
3 1,3-Dichloropropane	76.00	9.665	9.665	(1.658)	404322	750	750
4 Ethylbenzene	106.00	11.449	11.449	(1.031)	304630	750	760
4 Styrene	104.00	12.082	12.082	(1.088)	638997	750	770
78 1,1,1,2-Tetrachloroethane	131.00	11.208	11.208	(1.010)	202876	750	750
3 Tetrachloroethene	164.00	10.307	10.307	(0.928)	201398	750	750
2 p-Xylene	106.00	12.144	12.144	(1.094)	371720	750	760
2 m,p-Xylene(s)	106.00	11.618	11.618	(1.047)	746492	1500	1500
40 Xylene (Total)	106.00				1118212	2200	2300
14 Bromobenzene	156.00	12.982	12.982	(0.897)	275947	750	750
2 n-Butylbenzene	91.00	15.212	15.212	(1.050)	865669	750	770
2 sec-Butylbenzene	105.00	14.106	14.106	(0.974)	804362	750	760
91 tert-Butylbenzene	119.00	14.088	14.088	(0.973)	741759	750	760
10 o-Chlorotoluene	91.00	13.339	13.339	(2.288)	2015053	750	770
1 p-Chlorotoluene	91.00	13.455	13.455	(2.308)	791764	750	770
108 1,2-Dibromo-3-Chloropropane	75.00	15.782	15.782	(2.707)	51978	750	760
97 1,2-Dichlorobenzene	146.00	14.971	14.971	(1.034)	470070	750	760
5 1,3-Dichlorobenzene	146.00	14.409	14.409	(0.995)	487588	750	760
5 1,4-Dichlorobenzene	146.00	14.516	14.516	(1.002)	497880	750	760
16 Hexachlorobutadiene	225.00	17.735	17.735	(1.225)	145492	750	780
37 Isopropylbenzene	105.00	12.759	12.759	(0.881)	902639	750	760
3 Isopropyltoluene	119.00	14.641	14.641	(1.011)	800562	750	770
7 Naphthalene	128.00	17.352	17.352	(1.198)	668759	750	820
38 n-Propylbenzene	91.00	13.339	13.339	(0.921)	2015053	750	760
15 1,1,2,2-Tetrachloroethane	83.00	12.483	12.483	(1.125)	287615	750	730
3 1,2,3-Trichlorobenzene	180.00	17.182	17.182	(1.187)	339314	750	810
3 1,2,4-Trichlorobenzene	180.00	17.798	17.798	(1.229)	307129	750	800
75 1,2,3-Trichloropropane	75.00	12.643	12.643	(2.168)	247345	750	760
1 1,2,4-Trimethylbenzene	105.00	14.106	14.106	(0.974)	804362	750	760
1 1,3,5-Trimethylbenzene	105.00	13.607	13.607	(0.940)	794766	750	760
2 Pentafluorobenzene	168.00	5.831	5.831	(1.000)	166036	250	
24 1,4-Difluorobenzene	114.00	6.945	6.945	(1.000)	233335	250	
1 Chlorobenzene-d5	117.00	11.101	11.101	(1.000)	187161	250	
1 1,4-Dichlorobenzene-d4	152.00	14.480	14.480	(1.000)	101596	250	
9 1,2-Dichloroethane-d4	102.00	6.009	6.009	(0.865)	54714	750	740
2 Toluene-d8	98.00	9.157	9.157	(1.318)	758302	750	740
1 Bromofluorobenzene	95.00	12.777	12.777	(1.840)	336337	750	750

# Flag Legend

- Target compound detected but, quantitated amount  
 exceeded maximum amount.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.1  
File ID: 1081iw4.d  
Smp Id:  
Analysis Type: VOA  
Int Type: ISTD  
Injector: JC  
Method File: /chem/1.i/1950322.b/18260w.m  
Data Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	166036	1.53
4 1,4-Difluorobenzene	224833	112416	449666	233335	3.78
3 Chlorobenzene-d5	182201	91100	364402	187161	2.72
3 1,4-Dichlorobenzene-	98492	49246	196984	101596	3.15

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.83	-0.17
4 1,4-Difluorobenzene	6.95	6.45	7.45	6.95	-0.02
3 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.01
3 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	-0.01

UPPER LIMIT = +100% of internal standard area.  
LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950322.b/10811.w4.d  
Date : 22-MAR-1995 16:54

Client ID:

Sample Info: 150 UG-L STD-8260M/1X

Purge Volume: 5.0

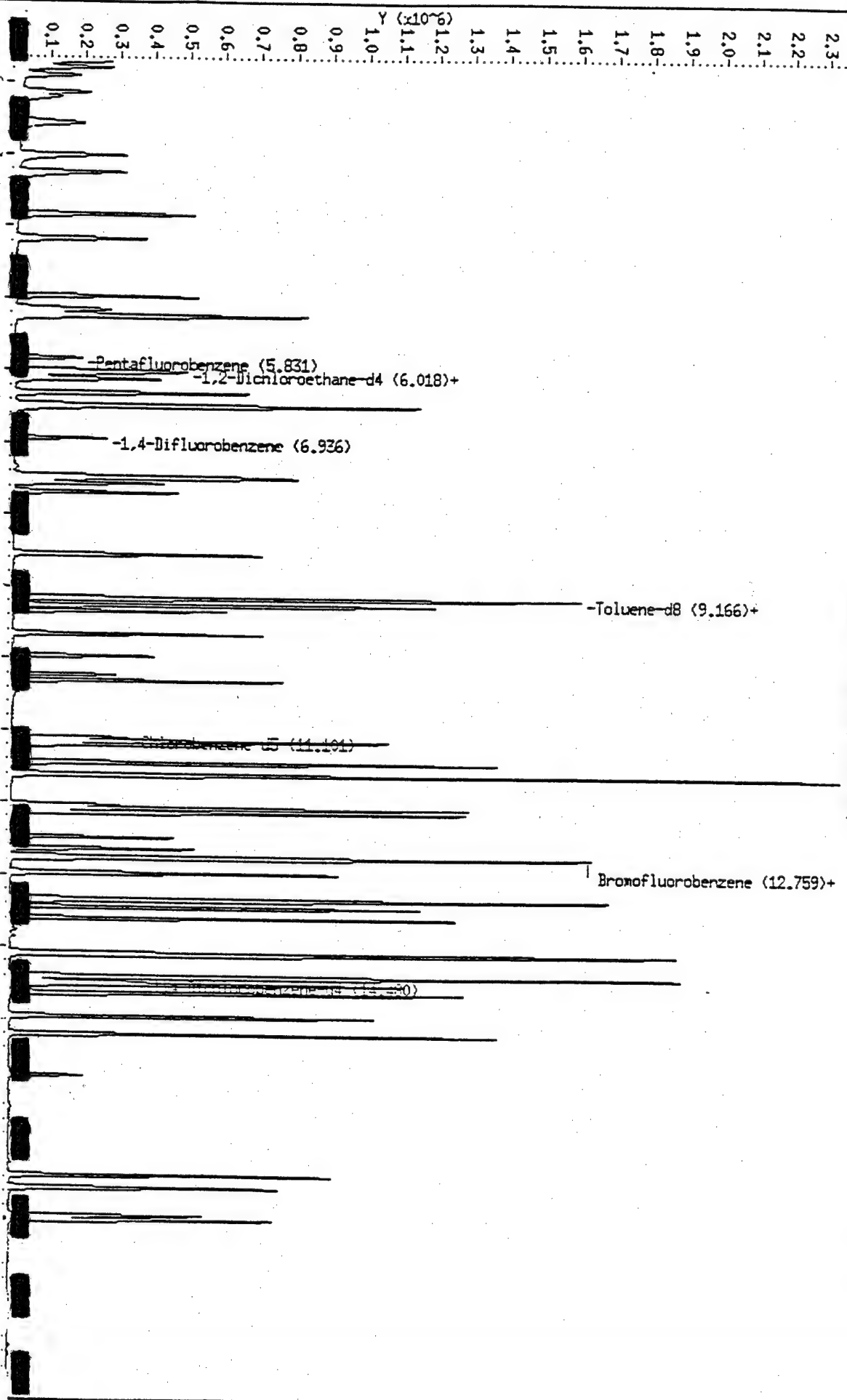
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950322.b/10811.w4.d



a File: /chem/1.i/1950322.b/1081iw5.d  
ort Date: 22-Mar-1995 17:51

Page 1

SPL Labs

Volatiles by 624/8240

a file : /chem/1.i/1950322.b/1081iw5.d

Smp Id:

Date : 22-MAR-1995 17:22

rator : JC

Inst ID: 1.i

Info : 200 UG-L STD-8260W/1X

c Info : L081W2//L081CW2

ment :

hod : /chem/1.i/1950322.b/18260w.m

h Date : 22-Mar-1995 17:51 jimmy

Quant Type: ISTD

Date : 22-MAR-1995 15:57

Cal File: 1081iw2.d

bottle: 6

Calibration Sample, Level: 5

Factor: 1.000

egrator: HP RTE

Compound Sublist: 8260.sub

get Version: 3.10

inds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
Bromochloromethane	128.00	5.233	5.233	(0.898)	176233	1000	980
Bromomethane	94.00	2.130	2.130	(0.365)	287687	1000	950
Chloroethane	64.00	2.192	2.192	(0.376)	221852	1000	960
Chloroform	83.00	5.251	5.251	(0.901)	641700	1000	980
Chloromethane	50.00	1.782	1.782	(0.306)	460508	1000	950
Dichlorodifluoromethane	85.00	1.693	1.693	(0.290)	458983	1000	1000
1,1-Dichloroethane	63.00	4.181	4.181	(0.717)	698752	1000	990
1,1-Dichloroethene	96.00	3.012	3.012	(0.517)	283050	1000	1000
cis-1,2-Dichloroethene	96.00	4.974	4.974	(0.853)	355455	1000	1000
trans-1,2-Dichloroethene	96.00	3.842	3.842	(0.659)	331260	1000	1000
1,2-Dichloroethene (total)	96.00				686715	2000	2000(A)
2,2-Dichloropropane	77.00	5.162	5.162	(0.885)	392563	1000	980
Methylene Chloride	84.00	3.244	3.244	(0.556)	324734	1000	990
1,1,1-Trichloroethane	97.00	6.035	6.035	(0.869)	478488	1000	990
Trichlorofluoromethane	100.90	2.558	2.558	(0.439)	404964	1000	1100
Vinyl Chloride	62.00	1.889	1.889	(0.324)	318176	1000	880
Benzene	78.00	6.481	6.481	(0.933)	1366293	1000	990
Bromodichloromethane	83.00	7.685	7.685	(1.107)	474086	1000	1000
Carbon Tetrachloride	117.00	6.508	6.508	(0.937)	390625	1000	1000
1,2-Dibromoethane	107.00	10.236	10.236	(1.474)	325449	1000	1000
Dibromomethane	93.00	7.560	7.560	(1.297)	252867	1000	1000
1,2-Dichloroethane	62.00	6.125	6.125	(1.050)	558760	1000	980
1,2-Dichloropropane	63.00	7.462	7.462	(1.074)	392669	1000	1000
1,1-Dichloropropene	75.00	6.312	6.312	(1.083)	484875	1000	1000
cis-1,3-Dichloropropene	75.00	8.550	8.550	(1.231)	555940	1000	1000
trans-1,3-Dichloropropene	75.00	9.174	9.174	(1.321)	519206	1000	1000
Toluene	92.00	9.264	9.264	(1.334)	771429	1000	1000
1,1,2-Trichloroethane	83.00	9.344	9.344	(1.345)	271588	1000	990
Trichloroethene	130.00	7.498	7.498	(1.080)	320231	1000	990

pounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
Bromoform	173.00	12.037	12.037	(1.084)	240168	1000	1100
Dibromochloromethane	129.00	9.968	9.968	(0.898)	319581	1000	1000
99 Chlorobenzene	112.00	11.145	11.145	(1.004)	774531	1000	980
1,3-Dichloropropane	76.00	9.665	9.665	(1.658)	551516	1000	990
Ethylbenzene	106.00	11.448	11.448	(1.031)	418276	1000	1000
Styrene	104.00	12.082	12.082	(1.088)	876504	1000	1000
1,1,1,2-Tetrachloroethane	131.00	11.208	11.208	(1.010)	280220	1000	1000
Tetrachloroethene	164.00	10.307	10.307	(0.928)	275613	1000	1000
o-Xylene	106.00	12.135	12.135	(1.093)	509088	1000	1000
2 m,p-Xylene(s)	106.00	11.618	11.618	(1.047)	1019994	2000	2000
40 Xylene (Total)	106.00				1529082	3000	3000
Bromobenzene	156.00	12.982	12.982	(0.897)	382988	1000	1000
n-Butylbenzene	91.00	15.212	15.212	(1.050)	1199945	1000	1000
2 sec-Butylbenzene	105.00	14.106	14.106	(0.974)	1100319	1000	990
91 tert-Butylbenzene	119.00	14.088	14.088	(0.973)	1021683	1000	1000
2-Chlorotoluene	91.00	13.339	13.339	(2.288)	2747389	1000	1000
1-Chlorotoluene	91.00	13.455	13.455	(2.308)	1081923	1000	1000
8 1,2-Dibromo-3-Chloropropane	75.00	15.782	15.782	(2.707)	73510	1000	1000
97 1,2-Dichlorobenzene	146.00	14.971	14.971	(1.034)	643009	1000	990
9 1,3-Dichlorobenzene	146.00	14.409	14.409	(0.995)	667038	1000	990
6 1,4-Dichlorobenzene	146.00	14.516	14.516	(1.002)	687701	1000	1000
16 Hexachlorobutadiene	225.00	17.735	17.735	(1.225)	199312	1000	1000
37 Isopropylbenzene	105.00	12.759	12.759	(0.881)	1245760	1000	1000
3 Isopropyltoluene	119.00	14.641	14.641	(1.011)	1107945	1000	1000
7 Naphthalene	128.00	17.352	17.352	(1.198)	941299	1000	1100
38 N-Propylbenzene	91.00	13.339	13.339	(0.921)	2747389	1000	990
46 1,1,2,2-Tetrachloroethane	83.00	12.483	12.483	(1.125)	413848	1000	1000
3 1,2,3-Trichlorobenzene	180.00	17.182	17.182	(1.187)	472721	1000	1100
3 1,2,4-Trichlorobenzene	180.00	17.789	17.789	(1.228)	422586	1000	1000
75 2,3-Trichloropropane	75.00	12.643	12.643	(2.169)	337282	1000	1000
7 2,4-Trimethylbenzene	105.00	14.106	14.106	(0.974)	1100319	1000	990
1 2,3,5-Trimethylbenzene	105.00	13.606	13.606	(0.940)	1091192	1000	1000
2 Pentafluorobenzene	168.00	5.830	5.830	(1.000)	171820	250	
24 1,4-Difluorobenzene	114.00	6.945	6.945	(1.000)	236187	250	
3 Chlorobenzene-d5	117.00	11.101	11.101	(1.000)	192234	250	
1 1,4-Dichlorobenzene-d4	152.00	14.480	14.480	(1.000)	106693	250	
9 1,2-Dichloroethane-d4	102.00	6.009	6.009	(0.865)	73043	1000	980
2 Fluene-d8	98.00	9.157	9.157	(1.318)	1034245	1000	1000
1 Bromofluorobenzene	95.00	12.777	12.777	(1.840)	454943	1000	1000

# Flag Legend

Target compound detected but, quantitated amount  
 exceeded maximum amount.

ta File: /chem/1.i/1950322.b/1081iw5.d  
port Date: 22-Mar-1995 17:51

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SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

strument ID: 1.i  
File ID: 1081iw5.d  
Smp Id:  
alysis Type: VOA  
nt Type: ISTD  
rator: JC  
hod File: /chem/1.i/1950322.b/18260w.m  
sc Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	171820	5.07
4 1,4-Difluorobenzene	224833	112416	449666	236187	5.05
8 Chlorobenzene-d5	182201	91100	364402	192234	5.51
3 1,4-Dichlorobenzene-	98492	49246	196984	106693	8.33

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.83	-0.18
4 1,4-Difluorobenzene	6.95	6.45	7.45	6.95	-0.02
8 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.01
3 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	-0.01

A UPPER LIMIT = +100% of internal standard area.  
A LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950322.b/10811w5.d  
Date : 22-MAR-1995 17:22

Client ID:

Sample Info: 200 UG-L STD-8260H/1X

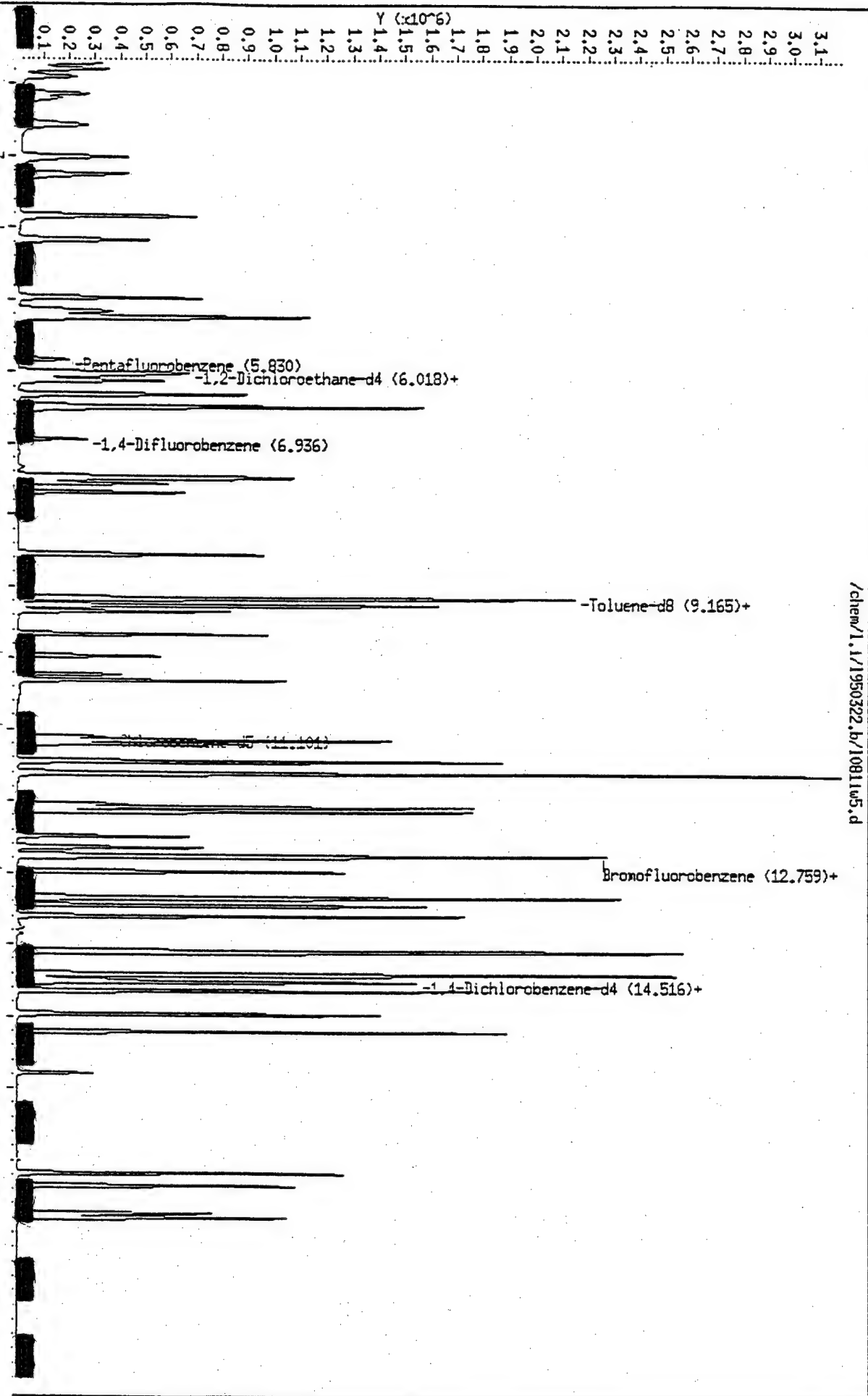
Purge Volume: 5.0

Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25



SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 1.i  
 Lab File ID: 1144cw3.d  
 Analysis Type: WATER  
 Lab Sample ID:  
 Quant Type: ISTD

Injection Date: 24-MAY-1995 20:04  
 Init. Calibration Date(s): 03/22/95 03/22/95  
 Init. Calibration Times: 15:28 17:22  
 Method File: /chem/1.i/1950524.b/18260w.m

COMPOUND	RRF	RF250	MIN RRF	%D	MAX %D
17 Bromochloromethane	0.261	0.233	0.010	10.5	40.0
4 Bromomethane	0.439	0.377	0.100	14.1	40.0
5 Chloroethane	0.335	0.329	0.010	1.9	40.0
18 Chloroform	0.947	0.876	0.200	7.5	25.0
1 Chloromethane	0.705	0.679	0.300	3.7	40.0
60 Dichlorodifluoromethane	0.660	0.495	0.010	25.0	40.0
12 1,1-Dichloroethane	1.029	0.829	0.300	19.4	40.0
8 1,1-Dichloroethene	0.412	0.366	0.100	11.2	25.0
16 cis-1,2-Dichloroethene	0.518	0.489	0.010	5.6	40.0
11 trans-1,2-Dichloroethene	0.482	0.383	0.010	20.5	40.0
M 13 1,2-Dichloroethene (total)	0.500	0.436	0.010	12.8	40.0
74 2,2-Dichloropropane	0.584	0.594	0.010	1.6	40.0
9 Methylene Chloride	0.477	0.404	0.010	15.4	40.0
20 1,1,1-Trichloroethane	0.512	0.551	0.100	7.6	40.0
6 Trichlorofluoromethane	0.543	0.528	0.010	2.7	40.0
3 Vinyl Chloride	0.526	0.562	0.100	6.8	25.0
22 Benzene	1.461	1.410	0.100	3.5	40.0
27 Bromodichloromethane	0.493	0.474	0.200	4.0	40.0
23 Carbon Tetrachloride	0.404	0.427	0.100	5.7	40.0
84 1,2-Dibromoethane	0.341	0.353	0.010	3.6	40.0
112 Dibromomethane	0.369	0.363	0.010	1.6	40.0
21 1,2-Dichloroethane	0.828	0.871	0.100	5.2	40.0
25 1,2-Dichloropropane	0.417	0.427	0.010	2.4	25.0
115 1,1-Dichloropropene	0.705	0.667	0.010	5.4	40.0
30 cis-1,3-Dichloropropene	0.574	0.573	0.100	0.2	40.0
31 trans-1,3-Dichloropropene	0.536	0.541	0.100	0.8	40.0
33 Toluene	0.811	0.799	0.400	1.4	25.0
34 1,1,2-Trichloroethane	0.291	0.275	0.100	5.3	40.0
26 Trichloroethene	0.343	0.332	0.100	3.1	40.0
43 Bromoform	0.292	0.267	0.250	8.7	40.0
36 Dibromochloromethane	0.402	0.371	0.100	7.6	40.0
39 Chlorobenzene	1.027	1.051	0.300	2.3	40.0
106 1,3-Dichloropropane	0.808	0.740	0.010	8.3	40.0
41 Ethylbenzene	0.536	0.548	0.100	2.3	25.0
44 Styrene	1.104	1.101	0.300	0.3	40.0
78 1,1,1,2-Tetrachloroethane	0.360	0.349	0.010	3.1	40.0
37 Tetrachloroethene	0.359	0.396	0.200	10.2	40.0
45 o-Xylene	0.656	0.663	0.300	1.0	40.0
42 m,p-Xylene(s)	0.662	0.664	0.300	0.3	40.0
M 40 Xylene (Total)	0.660	0.663	0.300	0.5	40.0

Data File: /chem/1.i/1950524.b/1144cw3.d  
Report Date: 24-May-1995 20:30

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SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 1.i  
Lab File ID: 1144cw3.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 24-MAY-1995 20:04  
Init. Calibration Date(s): 03/22/95 03/22/95  
Init. Calibration Times: 15:28 17:22  
Method File: /chem/1.i/1950524.b/18260w.m

COMPOUND	RRF	RF250	MIN RRF	MAX %D
114 Bromobenzene	0.901	1.002	0.010	11.2
94 n-Butylbenzene	2.756	2.356	0.010	14.5
92 sec-Butylbenzene	2.606	2.624	0.010	0.7
91 tert-Butylbenzene	2.395	2.319	0.010	3.2
80 2-Chlorotoluene	3.938	3.508	0.010	10.9
81 4-Chlorotoluene	1.547	1.420	0.010	8.2
108 1,2-Dibromo-3-Chloropropane	0.103	0.079	0.010	23.5
97 1,2-Dichlorobenzene	1.516	1.494	0.010	1.4
95 1,3-Dichlorobenzene	1.577	1.554	0.010	1.5
96 1,4-Dichlorobenzene	1.616	1.596	0.010	1.2
116 Hexachlorobutadiene	0.462	0.371	0.010	19.7
87 Isopropylbenzene	2.919	3.044	0.010	4.3
93 p-Isopropyltoluene	2.564	2.357	0.010	8.1
117 Naphthalene	2.003	1.792	0.010	10.5
88 N-Propylbenzene	6.514	6.359	0.010	2.4
46 1,1,2,2-Tetrachloroethane	0.529	0.482	0.300	8.8
118 1,2,3-Trichlorobenzene	1.035	0.982	0.010	5.1
98 1,2,4-Trichlorobenzene	0.939	0.846	0.010	9.9
75 1,2,3-Trichloropropane	0.492	0.447	0.010	9.2
90 1,2,4-Trimethylbenzene	2.606	2.624	0.010	0.7
89 1,3,5-Trimethylbenzene	2.555	2.624	0.010	2.7
\$ 19 1,2-Dichloroethane-d4	0.079	0.077	0.010	2.1
\$ 32 Toluene-d8	1.091	1.081	0.010	0.9
\$ 47 Bromofluorobenzene	0.479	0.463	0.010	3.2

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950524.b/1144cw3.d

Lab Smp Id:

Inj Date : 24-MAY-1995 20:04

Operator : JC

Inst ID: 1.i

Smp Info : 50 UG-L STD-8260W/1X

Misc Info : L144W2//L144CW3

Comment :

Method : /chem/1.i/1950524.b/18260w.m

Meth Date : 24-May-1995 20:31 jimmy

Quant Type: ISTD

Cal Date : 24-MAY-1995 20:04

Cal File: 1144cw3.d

als bottle: 10

Continuing Calibration Sample

Oil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
17 Bromochloromethane	128.00	5.232	5.232	(0.899)	42921	250	220
4 Bromomethane	94.00	2.130	2.130	(0.366)	69387	250	210
5 Chloroethane	64.00	2.201	2.201	(0.378)	60581	250	240
18 Chloroform	83.00	5.241	5.241	(0.900)	161268	250	230
1 Chloromethane	50.00	1.791	1.791	(0.308)	124984	250	240
60 Dichlorodifluoromethane	85.00	1.711	1.711	(0.294)	91137	250	190
12 1,1-Dichloroethane	63.00	4.171	4.171	(0.717)	152593	250	200
8 1,1-Dichloroethene	96.00	3.012	3.012	(0.518)	67313	250	220
16 cis-1,2-Dichloroethene	96.00	4.964	4.964	(0.853)	90009	250	240
11 trans-1,2-Dichloroethene	96.00	3.832	3.832	(0.658)	70547	250	200
13 1,2-Dichloroethene (total)	96.00				160556	500	440
74 2,2-Dichloropropane	77.00	5.161	5.161	(0.887)	109245	250	250
9 Methylene Chloride	84.00	3.244	3.244	(0.557)	74301	250	210
20 1,1,1-Trichloroethane	97.00	6.034	6.034	(0.871)	131999	250	270
6 Trichlorofluoromethane	100.90	2.558	2.558	(0.439)	97195	250	240
3 Vinyl Chloride	62.00	1.898	1.898	(0.326)	103359	250	270
22 Benzene	78.00	6.471	6.471	(0.934)	337802	250	240
27 Bromodichloromethane	83.00	7.674	7.674	(1.108)	113541	250	240
23 Carbon Tetrachloride	117.00	6.498	6.498	(0.938)	102375	250	260
84 1,2-Dibromoethane	107.00	10.233	10.233	(1.478)	84648	250	260
112 Dibromomethane	93.00	7.549	7.549	(1.297)	66844	250	250
21 1,2-Dichloroethane	62.00	6.105	6.105	(1.049)	160405	250	260
25 1,2-Dichloropropane	63.00	7.451	7.451	(1.076)	102342	250	260
115 1,1-Dichloropropene	75.00	6.302	6.302	(1.083)	122714	250	240
30 cis-1,3-Dichloropropene	75.00	8.539	8.539	(1.233)	137354	250	250
31 trans-1,3-Dichloropropene	75.00	9.172	9.172	(1.324)	129625	250	250
33 Toluene	92.00	9.252	9.252	(1.336)	191593	250	250
34 1,1,2-Trichloroethane	83.00	9.341	9.341	(1.349)	65949	250	240
26 Trichloroethene	130.00	7.487	7.487	(1.081)	79635	250	240

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
Bromoform	173.00	12.033	12.033	(1.083)	51178	250	230
Dibromochloromethane	129.00	9.965	9.965	(0.897)	71228	250	230
99 Chlorobenzene	112.00	11.151	11.151	(1.004)	201635	250	260
106 1,3-Dichloropropane	76.00	9.662	9.662	(1.660)	136262	250	230
Ethylbenzene	106.00	11.454	11.454	(1.031)	105240	250	260
Styrene	104.00	12.087	12.087	(1.088)	211308	250	250
78 1,1,1,2-Tetrachloroethane	131.00	11.204	11.204	(1.009)	66977	250	240
37 Tetrachloroethene	164.00	10.313	10.313	(0.929)	76042	250	280
o-Xylene	106.00	12.140	12.140	(1.093)	127164	250	250
m,p-Xylene(s)	106.00	11.623	11.623	(1.047)	254843	500	500
40 Xylene (Total)	106.00				382007	750	750
11 Bromobenzene	156.00	12.987	12.987	(0.896)	101699	250	280
n-Butylbenzene	91.00	15.224	15.224	(1.050)	239179	250	210
sec-Butylbenzene	105.00	14.110	14.110	(0.974)	266423	250	250
91 tert-Butylbenzene	119.00	14.092	14.092	(0.972)	235430	250	240
2-Chlorotoluene	91.00	13.344	13.344	(2.293)	645697	250	220
4-Chlorotoluene	91.00	13.459	13.459	(2.313)	261431	250	230
08 1,2-Dibromo-3-Chloropropane	75.00	15.795	15.795	(2.714)	14519	250	190
97 1,2-Dichlorobenzene	146.00	14.975	14.975	(1.033)	151745	250	250
1,3-Dichlorobenzene	146.00	14.413	14.413	(0.994)	157831	250	250
1,4-Dichlorobenzene	146.00	14.529	14.529	(1.002)	162108	250	250
16 Hexachlorobutadiene	225.00	17.747	17.747	(1.224)	37656	250	200
87 Isopropylbenzene	105.00	12.764	12.764	(0.881)	309107	250	260
p-Isopropyltoluene	119.00	14.654	14.654	(1.011)	239358	250	230
Naphthalene	128.00	17.364	17.364	(1.198)	181981	250	220
88 N-Propylbenzene	91.00	13.344	13.344	(0.921)	645697	250	240
1,1,1,2,2-Tetrachloroethane	83.00	12.488	12.488	(1.124)	92592	250	230
1,1,2,3-Trichlorobenzene	180.00	17.194	17.194	(1.186)	99737	250	240
1,2,4-Trichlorobenzene	180.00	17.809	17.809	(1.229)	85865	250	220
75 1,2,3-Trichloropropane	75.00	12.648	12.648	(2.173)	82294	250	230
1,2,4-Trimethylbenzene	105.00	14.110	14.110	(0.974)	266423	250	250
1,3,5-Trimethylbenzene	105.00	13.611	13.611	(0.939)	266483	250	260
2-Pentafluorobenzene	168.00	5.820	5.820	(1.000)	184068	250	
24 1,4-Difluorobenzene	114.00	6.925	6.925	(1.000)	239653	250	
Chlorobenzene-d5	117.00	11.106	11.106	(1.000)	191926	250	
1,4-Dichlorobenzene-d4	152.00	14.493	14.493	(1.000)	101540	250	
19 1,2-Dichloroethane-d4	102.00	5.990	5.990	(0.865)	18494	250	240
32 Toluene-d8	98.00	9.154	9.154	(1.322)	259148	250	250
Bromofluorobenzene	95.00	12.782	12.782	(1.846)	111041	250	240

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: l144cw3.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950524.b/l8260w.m  
Disc Info: L144W2//L144CW3

Calibration Date: 05/24/95  
Calibration Time: 1935

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	176785	88392	353570	184068	4.12
24 1,4-Difluorobenzene	221248	110624	442496	239653	8.32
38 Chlorobenzene-d5	184507	92254	369014	191926	4.02
48 1,4-Dichlorobenzene-	101512	50756	203024	101540	0.03

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.83	5.33	6.33	5.82	-0.15
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	-0.13
38 Chlorobenzene-d5	11.11	10.61	11.61	11.11	0.00
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.49	0.00

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144cw3.d  
Date : 24-MAY-1995 20:04

Client ID:

Sample Info: 50 UC-L STD-8260M/1X

Purge Volume: 5.0

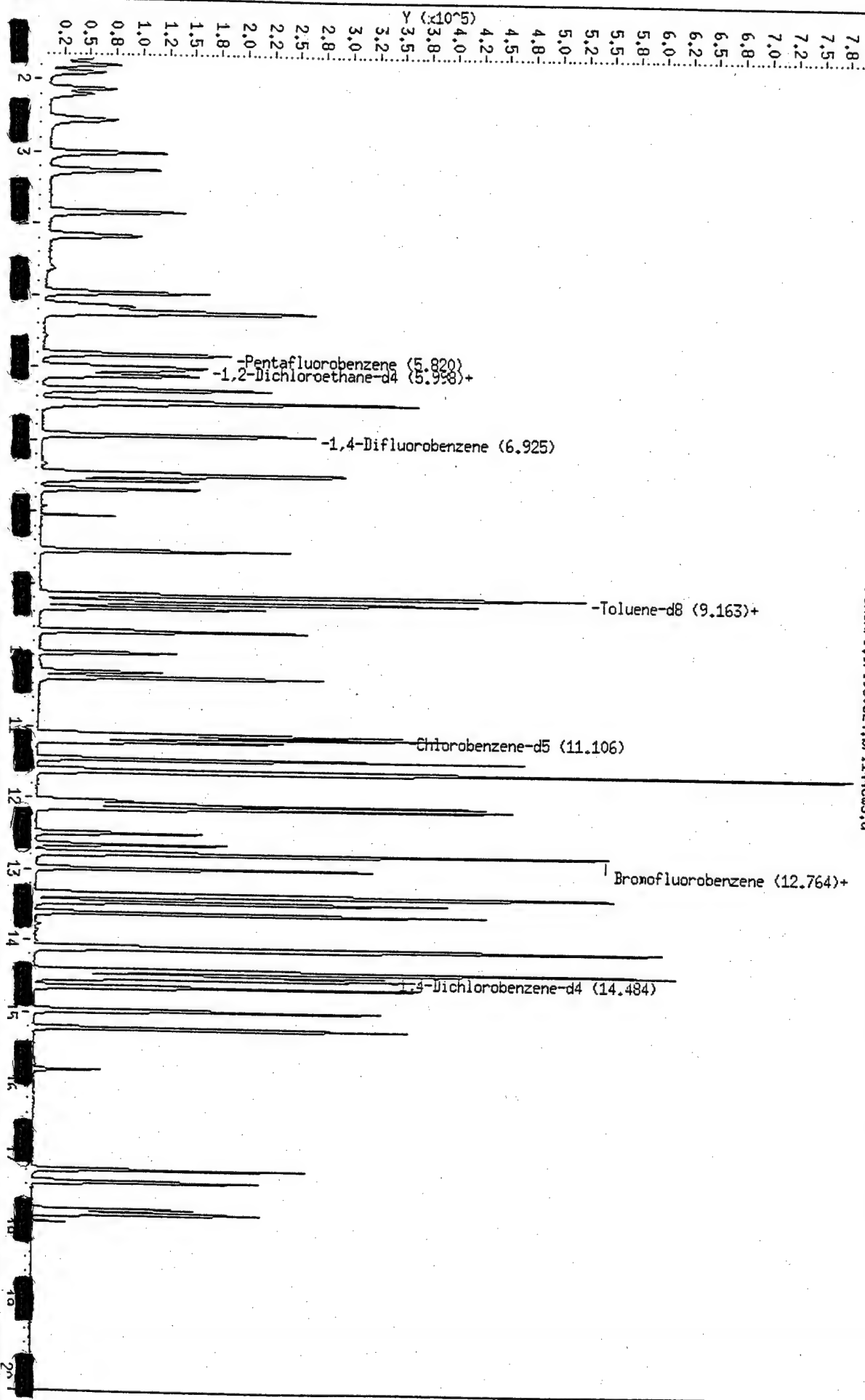
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950524.b/1144cw3.d



3A  
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPL

Case No.: BLANK

SAS No.: \_\_\_\_\_

SDG NO.: 505714

Matrix Spike - EPA Sample No.: BLK01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC.
Phenol	75	0	47	63	12-110
2-Chlorophenol	75	0	53	71	27-123
1,4-Dichlorobenzene	50	0	33	66	36- 97
N-Nitroso-di-n-propylamin	50	0	33	66	41-116
1,2,4-Trichlorobenzene	50	0	36	72	39- 98
4-Chloro-3-methylphenol	75	0	56	75	23- 97
Acenaphthene	50	0	35	70	46-118
4-Nitrophenol	75	0	56	75	10- 80
2,4-Dinitrotoluene	50	0	35	70	24- 96
Pentachlorophenol	75	0	23	31	9-103
Pyrene	50	0	32	64	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
Phenol	75	48	64	2	42	12-110
2-Chlorophenol	75	53	71	0	40	27-123
1,4-Dichlorobenzene	50	33	66	0	28	36- 97
N-Nitroso-di-n-propylamin	50	32	64	3	38	41-116
1,2,4-Trichlorobenzene	50	35	70	3	28	39- 98
4-Chloro-3-methylphenol	75	58	77	3	42	23- 97
Acenaphthene	50	35	70	0	31	46-118
4-Nitrophenol	75	47	63	17	50	10- 80
2,4-Dinitrotoluene	50	35	70	0	38	24- 96
Pentachlorophenol	75	24	32	3	50	9-103
Pyrene	50	31	62	3	31	26-127

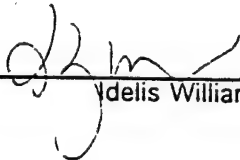
# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

FORM III SV - 1

  
Idelis Williams, QC Officer



## SPL Blank QC Report

page 1

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950522041714


Reported on: 06/01/95 17:13  
Analyzed on: 05/26/95 15:48  
Analyst: PC

METHOD 8270/625 J142B01

C o m p o u n d	Result	Detection Limit	Units
Pyridine	ND	5	ug/L
Phenol	ND	5	ug/L
Aniline	ND	5	ug/L
bis(2-Chloroethyl) ether	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
bis(2-chloroisopropyl) ethe	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
N-Nitroso-di-n-propylamine	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Nitrobenzene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Benzoic acid	ND	25	ug/L
bis(2-Chloroethoxy) methane	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
Naphthalene	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
4-Chloro-3-methylphenol	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
Dimethylphthalate	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 2

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950522041714

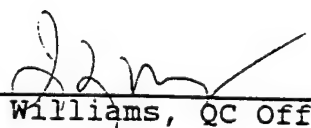
Reported on: 06/01/95 17:13  
Analyzed on: 05/26/95 15:48  
Analyst: PC

METHOD 8270/625 J142B01

C o m p o u n d	Result	Detection Limit	Units
Acenaphthylene	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
Acenaphthene	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
Dibenzofuran	ND	5	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
4-Chlorophenyl-phenylether	ND	5	ug/L
Fluorene	ND	5	ug/L
4-Nitroaniline	ND	25	ug/L
4,6-Dinitro-2-methylphenol	ND	25	ug/L
n-Nitrosodiphenylamine	ND	5	ug/L
1,2-Diphenylhydrazine	ND	5	ug/L
4-Bromophenyl-phenylether	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Anthracene	ND	5	ug/L
Carbazole	ND	5	ug/L
Di-n-butylphthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Pyrene	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
Benzo[a]anthracene	ND	5	ug/L
Chrysene	ND	5	ug/L
bis(2-Ethylhexyl)phthalate	ND	5	ug/L
Di-n-octylphthalate	ND	5	ug/L
Benzo[b]fluoranthene	ND	5	ug/L
Benzo[k]fluoranthene	ND	5	ug/L
Benzo[a]pyrene	ND	5	ug/L
Indeno[1,2,3-cd]pyrene	ND	5	ug/L
Dibenz[a,h]anthracene	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 3

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950522041714

Reported on: 06/01/95 17:13  
Analyzed on: 05/26/95 15:48  
Analyst: PC

METHOD 8270/625 J142B01

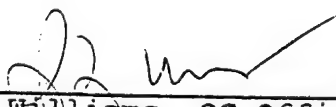
C o m p o u n d	Result	Detection Limit	Units
Benzo[g,h,i]perylene	ND	5	ug/L

S u r r o g a t e	Result	QC Criteria	Units
2-Fluorophenol	83	21-110	% Recovery
Phenol-d5	74	10-110	% Recovery
Nitrobenzene-d5	76	35-114	% Recovery
2-Fluorobiphenyl	69	43-116	% Recovery
2,4,6-Tribromophenol	64	10-123	% Recovery
Terphenyl-d14	79	33-141	% Recovery

Samples in Batch 9505714-01 9505714-02 9505714-03 9505714-04  
9505714-05 9505714-07 9505714-08

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

SPL Houston Labs

ata file : /chem/j.i/j950526.b/j142b01.d  
ab Smp Id:  
nj Date : 26-MAY-1995 15:48  
operator : PC  
mp Info : BLANK-8270W/1X  
isc Info : E142C1/J142B01/J146CC1  
omment :  
ethod : /chem/j.i/j950526.b/jclpw.m  
ath Date : 26-May-1995 16:37 patti  
al Date : 26-MAY-1995 15:03  
s bottle: 1  
l Factor: 1.000  
tegrator: HP RTE  
rget Version: 3.10

Inst ID: j.i  
Quant Type: ISTD  
Cal File: j146cc1.d

Compound Sublist: BLK.sub

pounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	----	--	-----	-----	-----	-----	-----	
3 2-Fluorophenol	112.00	5.511	5.523	(0.715)	1124528	120	62	
4 Phenol-d5	99.00	7.123	7.123	(0.924)	1560748	110	56	
11 1,4-Dichlorobenzene-d4	152.00	7.712	7.701	(1.000)	370297	40		
23 Nitrobenzene-d5	82.00	8.910	8.913	(0.851)	929133	76	38	
32 Naphthalene-d8	136.00	10.476	10.472	(1.000)	1237294	40		
41 2-Fluorobiphenyl	172.00	13.106	13.101	(0.891)	1628431	69	35	
48 Acenaphthene-d10	164.00	14.716	14.706	(1.000)	692710	40		
51 2,4,6-Tribromophenol	329.70	16.682	16.684	(0.911)	280640	96	48	
55 Phenanthrene-d10	188.00	18.314	18.311	(1.000)	1026801	40		
72 Terphenyl-d14	244.00	22.290	22.270	(0.894)	1789430	79	39	
76 Chrysene-d12	240.00	24.922	24.930	(1.000)	866569	40		
83 Perylene-d12	264.00	29.256	29.251	(1.000)	576932	40		

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: j.i  
File ID: j142b01.d  
Lab Smp Id:  
Analysis Type: SV  
Int Type: ISTD  
Operator: PC  
Method File: /chem/j.i/j950526.b/jclpw.m  
File Info: E142C1/J142B01/J146CC1

Calibration Date: 05/26/95  
Calibration Time: 1503

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
1,4-Dichlorobenzene-	330816	165408	661632	370297	11.93
Naphthalene-d8	1173298	586649	2346596	1237294	5.45
Acenaphthene-d10	628204	314102	1256408	692710	10.27
Phenanthrene-d10	927125	463562	1854250	1026801	10.75
Chrysene-d12	703759	351880	1407518	866569	23.13
Perylene-d12	450683	225342	901366	576932	28.01

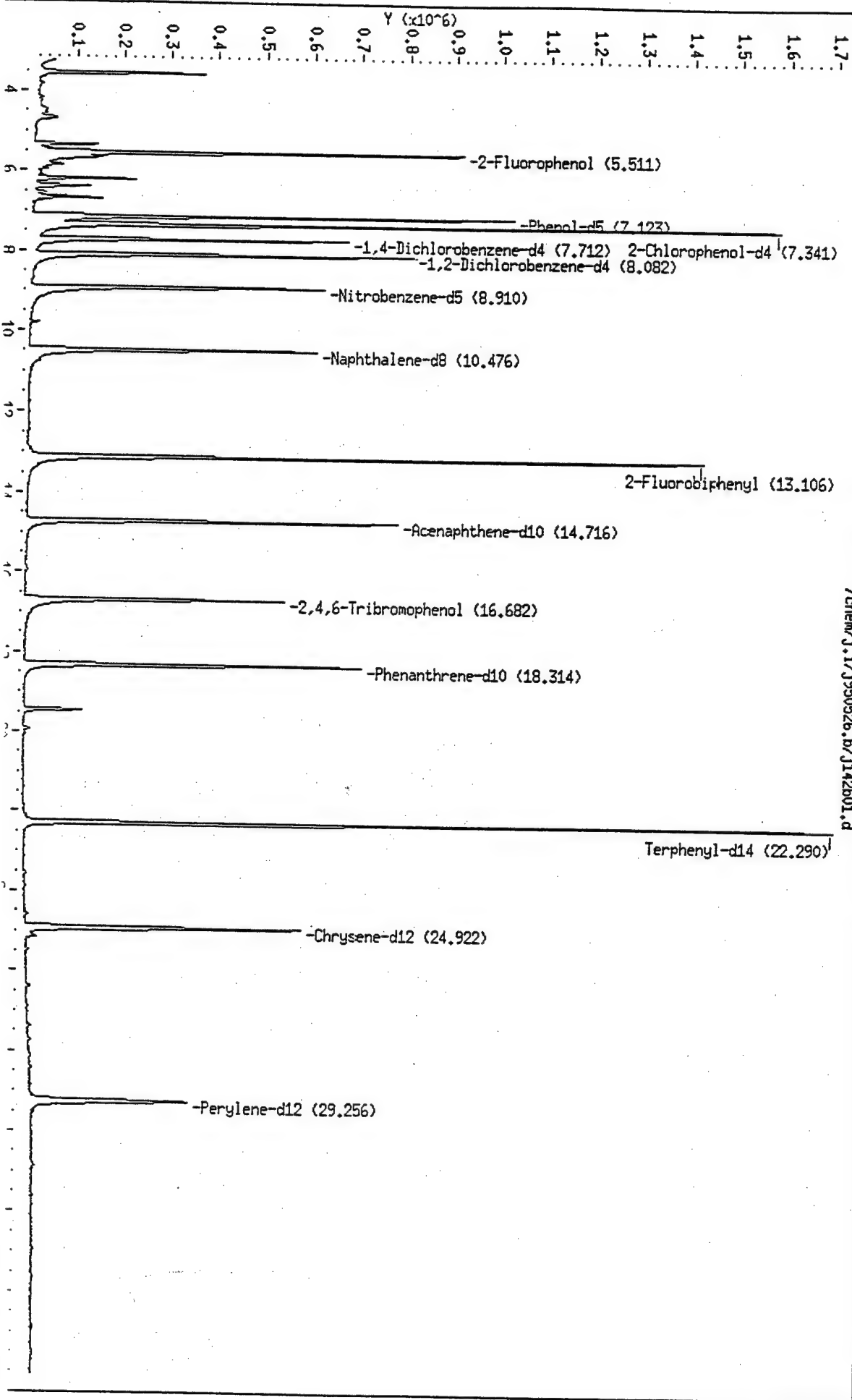
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
1,4-Dichlorobenzene-	7.70	7.20	8.20	7.71	0.14
Naphthalene-d8	10.47	9.97	10.97	10.48	0.04
Acenaphthene-d10	14.71	14.21	15.21	14.72	0.07
Phenanthrene-d10	18.31	17.81	18.81	18.31	0.01
Chrysene-d12	24.93	24.43	25.43	24.92	-0.03
Perylene-d12	29.25	28.75	29.75	29.26	0.02

EA UPPER LIMIT = +100% of internal standard area.  
EA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/J.1/J950526.b/J142B01.d  
Date : 26-MAY-1995 15:48  
Client ID:  
Sample Info: BLANK-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: J.1  
Operator: PC  
Column diameter: 0.25

/chem/J.1/J950526.b/J142B01.d



Date : 31-MAY-95 13:08

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

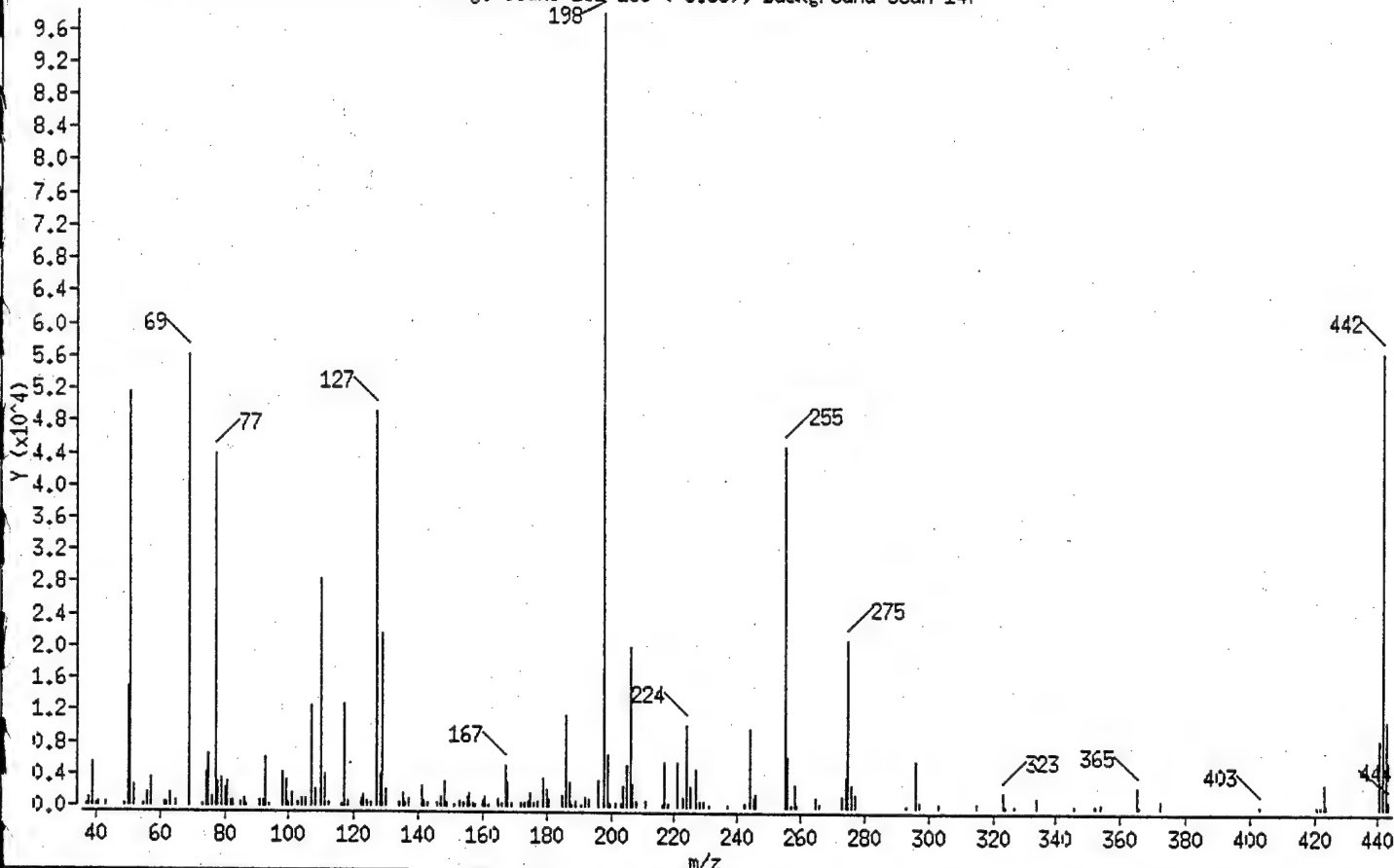
Operator: LH

Column phase:

Column diameter: 2.00

1 dftpp

Avg. Scans 151-153 ( 5.33), Background Scan 147



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	52.38
68	Less than 2.00% of mass 69	0.00 ( 0.00)
69	Mass 69 relative abundance	57.15
70	Less than 2.00% of mass 69	0.00 ( 0.00)
127	40.00 - 60.00% of mass 198	50.21
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.61
275	10.00 - 30.00% of mass 198	21.20
365	Greater than 1.00% of mass 198	2.66
441	Present, but less than mass 443	8.72
442	40.00 - 110.00% of mass 198	57.93
443	17.00 - 23.00% of mass 442	11.21 ( 19.35)

Data File: /chem/h.i/h950531.b/h151df12.d

Date : 31-MAY-95 13:08

Page 1

Client ID:

Instrument: h.i

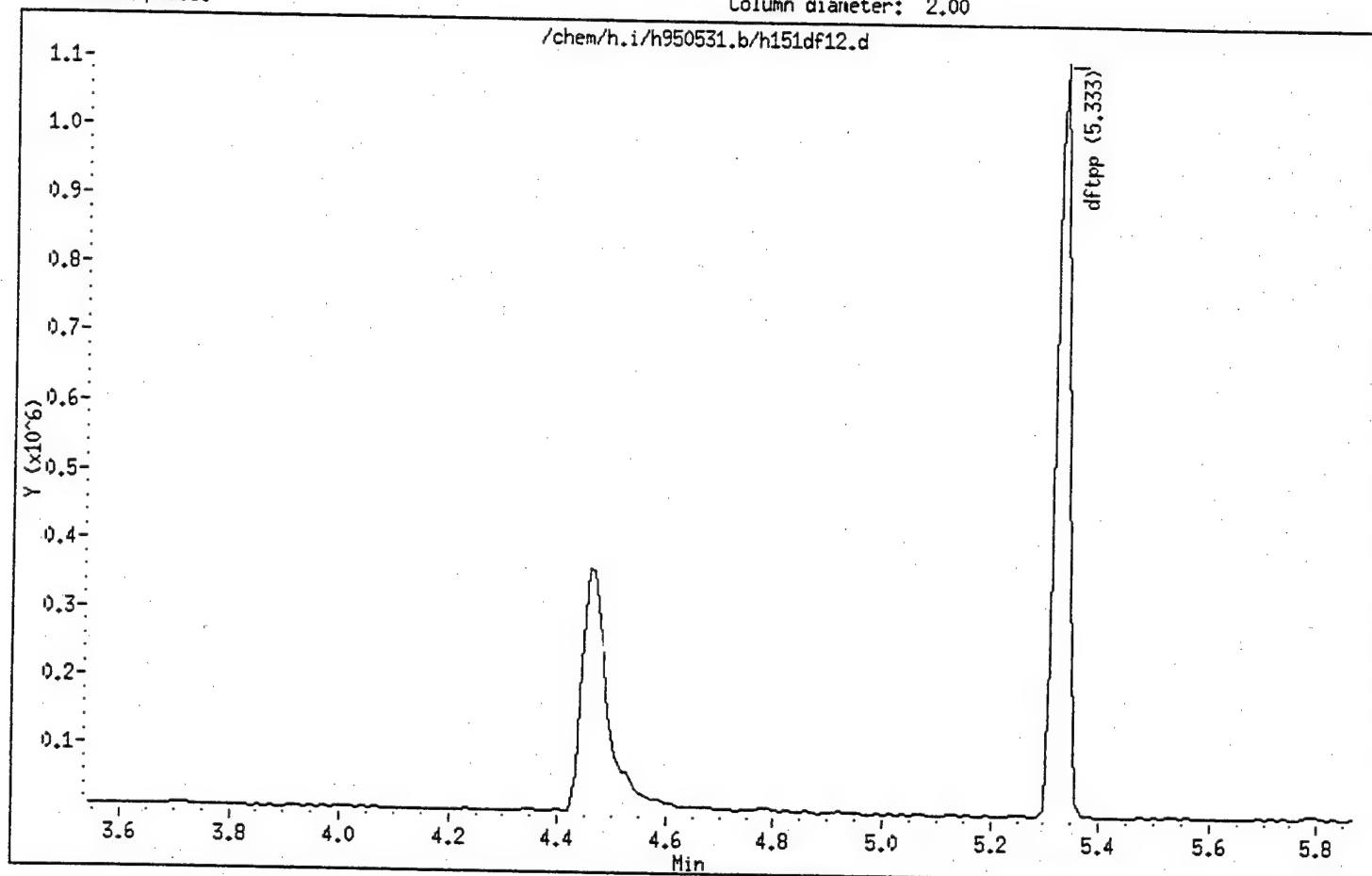
Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00





Date : 31-MAY-95 13:08

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00

Data File: h151df12.d

Spectrum : Avg. Scans 151-153 ( 5.33), Background Scan 147

Largest m/z: 197.90

Number of peaks: 166

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.85	187	104.95	899	168.95	425	241.95	498
37.85	994	106.95	12568	171.85	382	243.95	9789
38.95	5245	107.95	2023	172.85	385	244.95	1275
39.85	120	109.95	28264	173.95	792	245.85	1605
40.85	401	110.95	3957	174.95	1713	254.95	45056
43.05	416	111.95	518	175.85	477	255.95	6338
48.90	279	115.85	337	176.95	712	256.95	199
49.90	14838	116.95	12799	178.85	3507	257.95	2784
50.90	51448	117.95	798	179.95	2180	258.85	174
51.90	2638	121.90	843	180.95	1014	264.95	1122
54.90	175	122.90	1333	184.95	1505	265.85	375
55.90	1600	123.90	603	185.95	11402	272.90	1398
56.90	3405	124.90	466	186.95	3068	273.90	3755
61.00	562	126.90	49320	187.85	197	274.90	20824
61.90	547	127.90	3832	188.95	663	275.90	2869
62.90	1711	128.90	21648	190.95	177	276.90	1716
65.00	717	129.90	2013	191.95	1148	292.90	176
68.90	56136	133.80	567	192.95	873	295.90	5731
73.00	210	134.90	1528	195.95	3147	296.90	655
74.00	4203	135.90	519	197.90	98224	303.00	528
74.90	6584	137.00	813	198.90	6492	314.85	460
76.00	1160	140.90	2482	199.90	437	322.95	1920
77.00	43904	141.90	725	201.30	463	323.85	173
78.00	3088	142.90	506	202.90	511	326.85	185
78.90	3426	146.00	424	203.90	2642	333.95	1063
79.90	2413	146.90	1046	204.90	5184	345.85	205
80.90	3104	147.90	3023	205.90	19912	351.90	315
81.85	714	148.90	480	206.90	2732	354.00	457
82.85	717	151.00	171	207.90	602	364.90	2615
84.85	414	152.90	644	211.00	679	365.90	167
85.85	952	153.90	509	215.90	232	372.00	964
86.95	191	155.00	1125	216.90	5553	402.95	256
90.95	621	156.00	1738	217.90	578	420.95	216
91.95	740	157.00	380	221.00	5485	422.05	199
92.85	6077	157.90	189	222.90	1204	423.05	3084

Date : 31-MAY-95 13:08

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00

Data File: h151df12.d

Spectrum : Avg. Scans 151-153 ( 5.33), Background Scan 147

Largest m/z: 197.90

Number of peaks: 166

m/z	Y	m/z	Y	m/z	Y	m/z	Y
93.95	236	159.85	689	224.00	10252	423.95	488
97.95	4194	160.85	1081	225.00	2655	441.10	8568
98.85	3274	161.95	177	226.90	4622	442.00	56896
99.85	366	164.85	992	227.90	616	443.00	11013
100.85	1568	165.85	577	229.00	683	444.00	929
102.85	499	166.95	5116	231.00	195		
103.95	874	167.85	2979	236.85	217		

Data File: /chem/h.i/h950601.b/h152df02.d

Page 2

Date : 01-JUN-1995 09:44

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

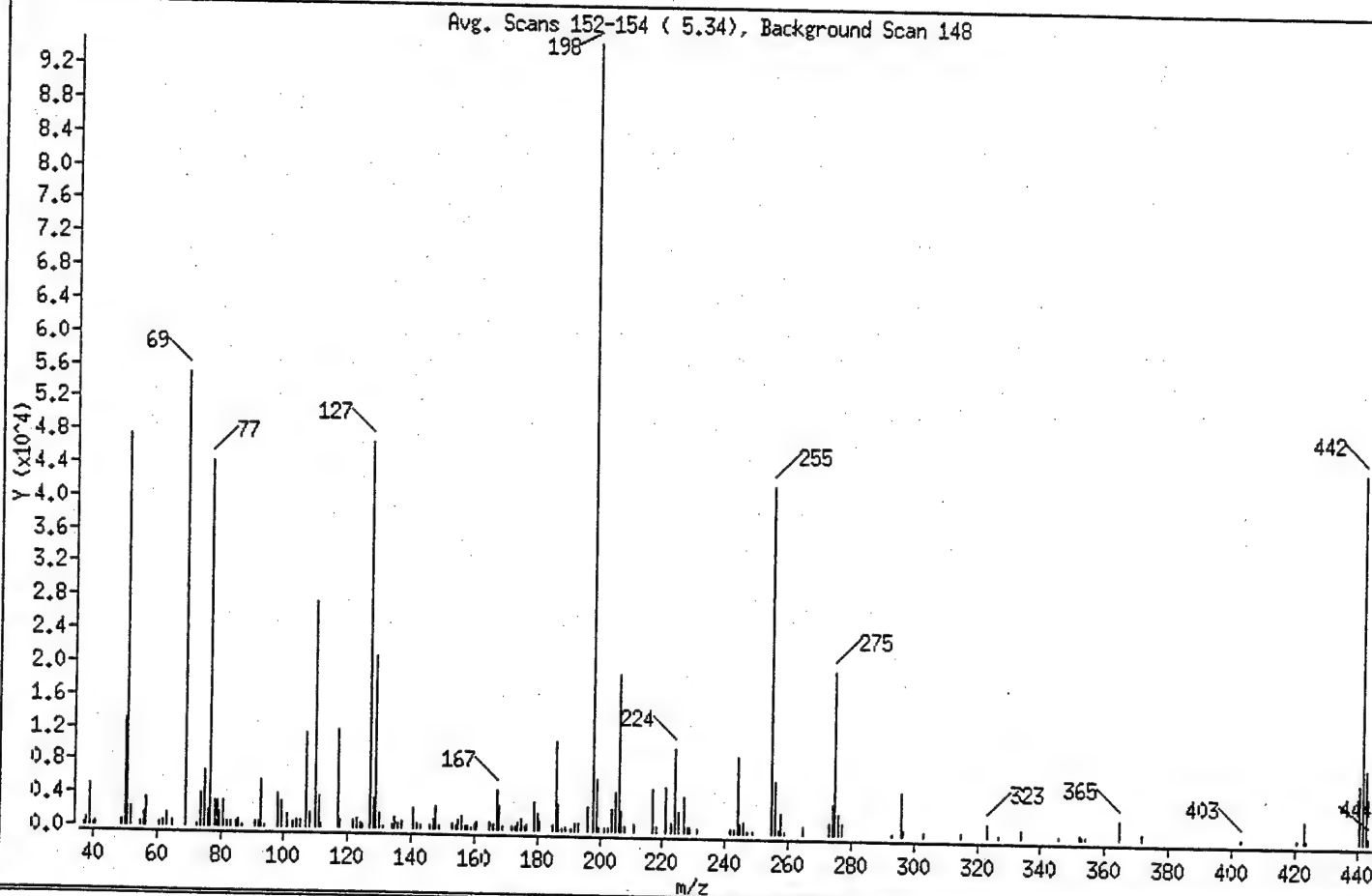
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	49.79
68	Less than 2.00% of mass 69	0.00 ( 0.00)
69	Mass 69 relative abundance	57.81
70	Less than 2.00% of mass 69	0.00 ( 0.00)
127	40.00 - 60.00% of mass 198	49.16
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.61
275	10.00 - 30.00% of mass 198	20.70
365	Greater than 1.00% of mass 198	2.25
441	Present, but less than mass 443	7.35
442	40.00 - 110.00% of mass 198	46.88
443	17.00 - 23.00% of mass 442	9.11 ( 19.44)

Data File: /chem/h.i/h950601.b/h152df02.d

Page 1

Date : 01-JUN-1995 09:44

Client ID:

Instrument: h.i

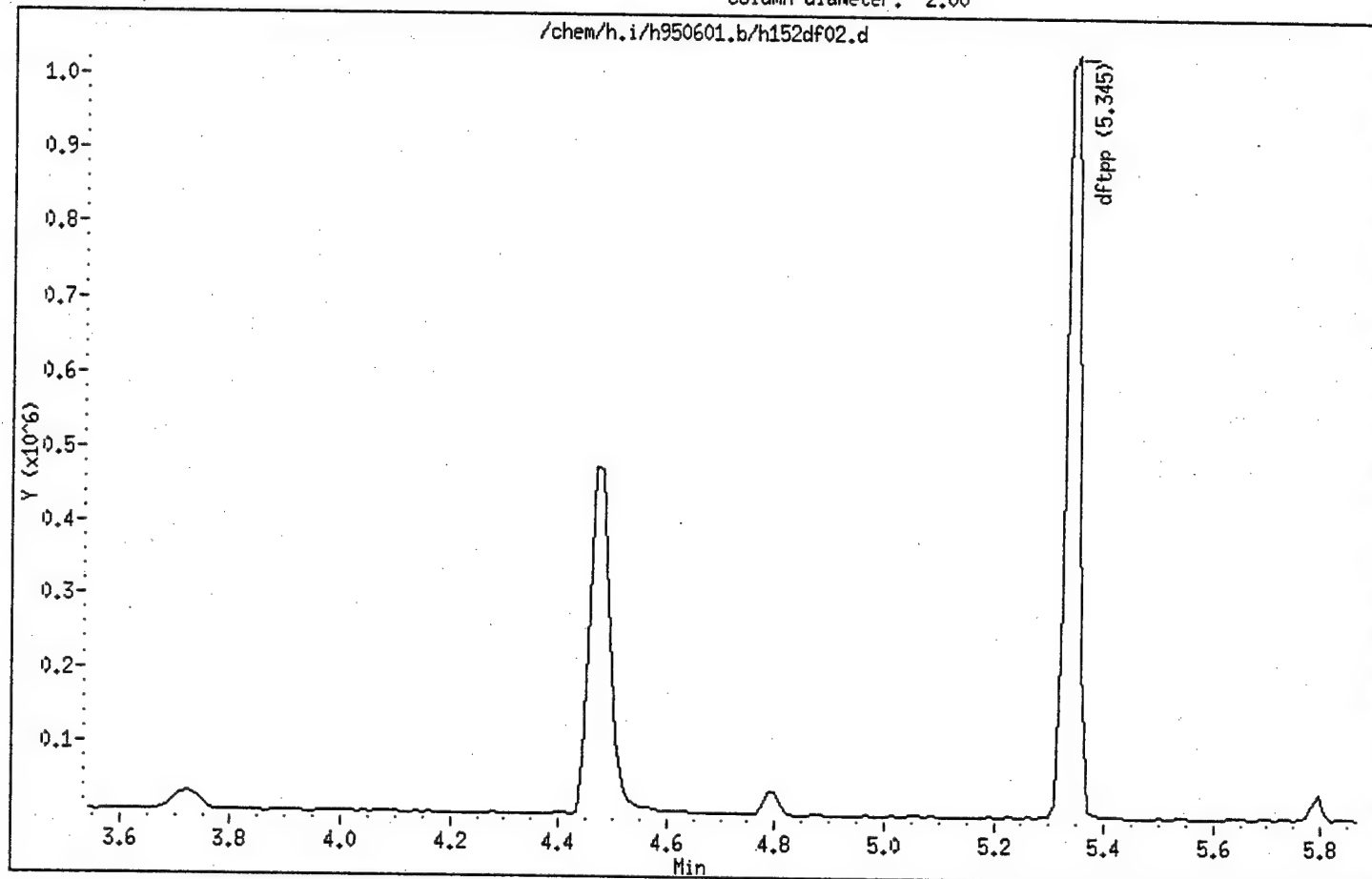
Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00



Date : 01-JUN-1995 09:44

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00

Data File: h152df02.d

Spectrum : Avg. Scans 152-154 ( 5.34), Background Scan 148

Largest m/z: 197.90

Number of peaks: 161

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.95	197	106.90	11520	171.80	384	244.00	9158
37.90	904	107.90	1823	173.00	378	244.90	1044
38.90	4919	109.90	27328	173.90	835	245.90	1365
39.80	229	110.90	3789	174.90	1337	246.90	167
40.90	385	111.90	424	175.90	509	248.90	173
48.90	588	116.90	11888	176.80	651	254.90	41976
49.90	13013	117.80	950	178.90	3436	255.90	6177
50.90	47288	121.90	878	179.90	1938	257.00	422
51.90	2221	122.90	1149	180.80	1064	257.90	2419
54.90	461	123.90	590	185.00	649	258.90	198
55.90	1622	124.90	518	185.90	10814	264.85	957
56.90	3264	126.90	46688	186.90	3054	272.95	1316
60.90	442	127.90	3660	187.80	167	273.95	3587
61.90	586	128.90	20824	188.90	555	274.95	19656
63.00	1533	129.90	1739	190.90	169	275.95	2567
65.00	720	130.90	214	191.90	881	276.85	1408
68.90	54904	133.80	453	192.90	881	292.95	240
72.85	183	134.85	1320	196.00	2972	295.95	5208
73.95	3987	135.85	567	197.90	94968	296.90	635
74.85	6640	136.85	821	198.90	6279	302.90	490
75.95	1996	140.85	2428	199.85	415	314.90	526
76.95	44256	141.85	760	201.55	431	323.00	1656
77.95	3127	142.85	512	202.85	462	326.90	208
78.95	3096	145.95	440	203.95	2772	333.95	831
79.95	1864	146.85	1019	204.95	4793	345.85	186
80.95	3099	147.85	2799	205.95	19024	351.95	420
81.95	686	148.85	549	206.95	2471	352.85	199
82.95	653	152.95	573	207.85	578	353.85	246
84.85	635	153.95	494	210.85	786	364.80	2133
85.85	975	154.95	1177	216.85	5079	371.90	682
86.85	203	155.95	1515	217.95	586	402.85	187
90.95	712	156.85	362	220.95	5326	420.95	168
91.95	668	157.85	400	222.85	1012	422.95	2488
92.95	5566	158.95	176	223.95	10070	423.95	191
93.95	207	159.95	571	224.95	2535	441.00	6977

Data File: /chem/h.i/h950601.b/h152df02.d

Page 4

Date : 01-JUN-1995 09:44

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00

Data File: h152df02.d

Spectrum : Avg. Scans 152-154 ( 5.34), Background Scan 148

Largest m/z: 197.90

Number of peaks: 161

m/z	Y	m/z	Y	m/z	Y	m/z	Y
97.95	4015	160.95	940	226.95	4188	441.90	44528
98.95	3237	164.95	830	227.85	625	443.00	8655
100.95	1667	166.05	578	228.85	780	444.00	765
102.80	621	166.90	4820	230.95	401		
103.90	990	167.80	2911	241.90	495		
104.90	812	168.90	405	243.00	363		

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 26-MAY-1995 11:56  
 End Cal Date : 26-MAY-1995 14:10  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/j.i/j950531.b/jclpw.m  
 Cal Date : 31-May-1995 14:00 patti  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/j.i/j950526.b/j146ic1.d  
 Level 2: /chem/j.i/j950526.b/j146ic2.d  
 Level 3: /chem/j.i/j950526.b/j146ic3.d  
 Level 4: /chem/j.i/j950526.b/j146ic4.d  
 Level 5: /chem/j.i/j950526.b/j146ic5.d

Compound	20	50	80	120	160	RRF	% RSD
	Level 1	Level 2	Level 3	Level 4	Level 5		
2 Pyridine	0.77992	1.05510	1.08459	1.22340	1.29302	1.08721	18.186
5 Phenol	1.68549	1.83563	1.67620	1.77861	1.86410	1.76800	4.829
6 Aniline	1.38704	1.74462	1.59096	1.78273	1.92342	1.68575	12.142
7 bis(2-Chloroethyl)ether	1.60453	1.72947	1.40095	1.41415	1.34975	1.49977	10.717
9 2-Chlorophenol	1.24004	1.29070	1.21088	1.23794	1.23382	1.24268	2.355
10 1,3-Dichlorobenzene	1.33097	1.45539	1.36648	1.42455	1.44254	1.40398	3.784
12 1,4-Dichlorobenzene	1.62294	1.63329	1.51281	1.52990	1.51502	1.56279	3.846
13 Benzyl alcohol	0.34822	0.68019	0.67544	0.79273	0.80726	0.66077	28.023
15 1,2-Dichlorobenzene	1.30670	1.42197	1.29617	1.35185	1.33196	1.34173	3.715
16 2-Methylphenol	0.98761	1.20306	1.10316	1.20029	1.21259	1.14134	8.478
17 ortho-Cresol	0.98761	1.20306	1.10316	1.20029	1.21259	1.14134	8.478
18 bis(2-chloroisopropyl)ether	1.62770	1.67757	1.51742	1.59891	1.60667	1.60565	3.617
19 4-Methylphenol	0.83847	1.10927	1.03746	1.25876	1.28422	1.10564	16.391
20 meta,para-Cresol	0.83847	1.10927	1.03746	1.25876	1.28422	1.10564	16.391
21 N-Nitroso-di-n-propylamine	0.80015	0.89792	0.87702	0.95102	0.80492	0.86621	7.400
22 Hexachloroethane	0.59377	0.62790	0.58272	0.60267	0.60124	0.60166	2.770
24 Nitrobenzene	0.34335	0.38715	0.36852	0.38493	0.39974	0.37674	5.766
25 Isophorone	0.69882	0.77691	0.76797	0.78824	0.82380	0.77115	5.921
26 2-Nitrophenol	0.17858	0.20501	0.20068	0.20867	0.21612	0.20181	7.020
27 2,4-Dimethylphenol	0.30957	0.35400	0.34236	0.35178	0.36535	0.34461	6.161
28 Benzoic acid	0.01265	0.04105	0.02247	0.01335	0.03242	0.02439	50.451
29 bis(2-Chloroethoxy)methane	0.39611	0.43120	0.41412	0.42822	0.44771	0.42347	4.581
30 2,4-Dichlorophenol	0.22910	0.28035	0.27801	0.29268	0.30842	0.27771	10.707
31 1,2,4-Trichlorobenzene	0.31047	0.33025	0.30478	0.31199	0.31884	0.31527	3.096
33 Naphthalene	0.98942	1.03363	0.95453	0.97634	1.00512	0.99181	3.008
34 4-Chloroaniline	0.32735	0.40091	0.39015	0.40484	0.41757	0.38816	9.115

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 26-MAY-1995 11:56  
 End Cal Date : 26-MAY-1995 14:10  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/j.i/j950531.b/jclpw.m  
 Cal Date : 31-May-1995 14:00 patti  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
35 Hexachlorobutadiene	0.17250	0.18101	0.16894	0.17065	0.17693	0.17401	2.827
36 4-Chloro-3-methylphenol	0.25654	0.30684	0.29334	0.30764	0.31872	0.29662	8.139
37 2-Methylnaphthalene	0.63049	0.69747	0.67904	0.68333	0.71085	0.68024	4.483
38 Hexachlorocyclopentadiene	0.10728	0.18985	0.20312	0.24621	0.27198	0.20369	31.010
39 2,4,6-Trichlorophenol	0.28894	0.35501	0.34071	0.37814	0.41048	0.35465	12.752
40 2,4,5-Trichlorophenol	0.35915	0.36892	0.39052	0.37402	0.40556	0.37963	4.851
42 2-Chloronaphthalene	1.10532	1.18410	1.09875	1.13526	1.14655	1.13400	3.034
43 2-Nitroaniline	0.31997	0.39121	0.37206	0.39453	0.40690	0.37694	9.075
44 Dimethylphthalate	1.31376	1.44367	1.34783	1.38103	1.18218	1.33370	7.297
45 2,6-Dinitrotoluene	0.28992	0.33519	0.31617	0.31721	0.29076	0.30985	6.245
46 Acenaphthylene	1.82987	1.96176	1.80184	1.86697	1.89308	1.87071	3.297
47 3-Nitroaniline	0.27509	0.33533	0.31284	0.34823	0.32914	0.32013	8.813
49 Acenaphthene	1.08781	1.14783	1.05987	1.08897	1.10260	1.09742	2.932
50 2,4-Dinitrophenol	0.05231	0.13526	0.11093	0.18839	0.20167	0.13771	43.983
51 4-Nitrophenol	0.11765	0.11685	0.10914	0.10637	0.14659	0.11932	13.410
52 Dibenzofuran	1.56653	1.69218	1.58664	1.63407	1.66308	1.62850	3.202
53 2,4-Dinitrotoluene	0.36593	0.44679	0.42498	0.45136	0.46146	0.43010	8.897
54 Diethylphthalate	1.29072	1.22744	1.11761	1.11437	1.11299	1.17262	6.997
55 4-Chlorophenyl-phenylether	0.60691	0.64934	0.59698	0.62112	0.63694	0.62226	3.432
56 Fluorene	1.27027	1.35186	1.24161	1.27347	1.29177	1.28579	3.194
57 4-Nitroaniline	0.31054	0.28312	0.27505	0.27771	0.28785	0.28685	4.927
58 4,6-Dinitro-2-methylphenol	0.09365	0.11168	0.12473	0.13101	0.16344	0.12490	20.701
59 n-Nitrosodiphenylamine	0.51751	0.55661	0.50542	0.45172	0.51535	0.50932	7.394
60 1,2-Diphenylhydrazine	2.11639	2.25530	2.04605	2.13042	2.46941	2.20351	7.564
62 4-Bromophenyl-phenylether	0.21555	0.23813	0.21945	0.22605	0.24014	0.22786	4.816
63 Hexachlorobenzene	0.24870	0.26169	0.24101	0.25437	0.29717	0.26059	8.370
64 Pentachlorophenol	0.07356	0.09252	0.11823	0.10296	0.13512	0.10448	22.595
66 Phenanthrene	1.22071	1.37992	1.27577	1.35915	1.55210	1.35753	9.301
67 Anthracene	1.20822	1.21851	1.07831	1.08610	1.25533	1.16929	6.966
68 Carbazole	0.85415	1.00880	0.85410	0.93476	1.09291	0.94894	10.861
69 Di-n-butylphthalate	1.37355	1.46386	1.34546	1.40227	1.59573	1.43617	6.921
70 Fluoranthene	1.13518	1.13291	1.04650	1.08960	1.26260	1.13336	7.136
71 Pyrene	1.36490	1.50002	1.42034	1.39482	1.44048	1.42411	3.582
73 Butylbenzylphthalate	0.74177	0.80787	0.75669	0.76528	0.78793	0.77191	3.387



## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 26-MAY-1995 11:56  
 End Cal Date : 26-MAY-1995 14:10  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/j.i/j950531.b/jclpw.m  
 Cal Date : 31-May-1995 14:00 patti  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
74 3,3'-Dichlorobenzidine	0.36960	0.41264	0.37440	0.43446	0.44697	0.40761	8.536
75 Benzo[a]anthracene	1.21589	1.27531	1.16962	1.22308	1.25168	1.22712	3.253
77 Chrysene	1.11474	1.18861	1.13136	1.15461	1.16676	1.15122	2.524
78 bis(2-Ethylhexyl)phthalate	1.03828	1.10640	0.99426	1.00901	1.04135	1.03786	4.156
79 Di-n-octylphthalate	2.65101	2.89542	2.77873	3.02553	3.28910	2.92796	8.365
80 Benzo[b]fluoranthene	1.52396	1.82303	2.00794	1.82066	1.98171	1.83146	10.519
81 Benzo[k]fluoranthene	1.87627	1.87065	1.45400	1.80557	1.83545	1.76839	10.069
82 Benzo[a]pyrene	1.43549	1.55226	1.45350	1.52725	1.54369	1.50244	3.596
84 Indeno[1,2,3-cd]pyrene	1.34641	1.46307	1.22212	1.28163	1.33992	1.33063	6.727
85 Dibenzo[a,h]anthracene	1.12777	1.20045	1.04406	1.09377	1.13599	1.12041	5.135
86 Benzo[g,h,i]perylene	1.06003	1.13081	0.97426	1.01119	1.06424	1.04811	5.657
96 Benzidine	0.17113	0.30425	0.28642	0.32556	0.33233	0.28394	23.107
\$ 3 2-Fluorophenol	1.17076	1.02124	0.99437	1.07619	1.04647	1.06181	6.406
\$ 4 Phenol-d5	1.39906	1.53868	1.42866	1.52988	1.62407	1.50407	6.037
\$ 8 2-Chlorophenol-d4	1.16753	1.35318	1.15438	1.18670	1.19006	1.21037	6.704
\$ 14 1,2-Dichlorobenzene-d4	0.43750	0.50606	0.43365	0.44246	0.44438	0.45281	6.640
\$ 23 Nitrobenzene-d5	0.36062	0.38916	0.36507	0.38223	0.39756	0.37893	4.151
\$ 41 2-Fluorobiphenyl	1.25776	1.36863	1.25835	1.31831	1.34682	1.30998	3.866
\$ 61 2,4,6-Tribromophenol	0.10651	0.11892	0.11151	0.12031	0.12501	0.11645	6.333
\$ 72 Terphenyl-d14	0.93856	1.04479	0.98847	0.98450	1.00241	0.99174	3.846

SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic5.d

Lab Smp Id:

Inj Date : 31-MAY-1995 14:48

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD020

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 6

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	( ug/L)
2 Pyridine		79.00	1.990	1.980	(0.523)	158008	16	8
5 Phenol		94.00	3.543	3.545	(0.931)	171788	20	10
6 Aniline		93.00	3.543	3.545	(0.931)	193558	21	10
7 bis(2-Chloroethyl)ether		93.00	3.590	3.592	(0.944)	152625	19	9
9 2-Chlorophenol		128.00	3.649	3.651	(0.959)	113849	20	10
10 1,3-Dichlorobenzene		146.00	3.768	3.770	(0.991)	116977	20	10
12 1,4-Dichlorobenzene		146.00	3.815	3.817	(1.003)	111248	19	10
13 Benzyl alcohol		108.00	3.934	3.936	(1.034)	77985	20	10
15 1,2-Dichlorobenzene		146.00	3.981	3.983	(1.047)	106559	19	10
16 2-Methylphenol		108.00	4.052	4.054	(1.065)	108450	20	10
18 bis(2-chloroisopropyl)ether		45.00	4.076	4.078	(1.072)	239784	20	10
19 4-Methylphenol		108.00	4.183	4.185	(1.100)	109632	21	10
21 N-Nitroso-di-n-propylamine		70.00	4.194	4.196	(1.103)	103655	20	10
22 Hexachloroethane		117.00	4.254	4.256	(1.118)	59240	20	10
24 Nitrobenzene		77.00	4.325	4.327	(0.869)	143073	19	10
25 Isophorone		82.00	4.538	4.552	(0.912)	279407	20	10
26 2-Nitrophenol		139.00	4.633	4.623	(0.931)	48104	19	10(a)
27 2,4-Dimethylphenol		107.00	4.680	4.682	(0.940)	117972	19	10
28 Benzoic acid		122.00	4.775	4.801	(0.960)	18154	15	8(a)
29 bis(2-Chloroethoxy)methane		93.00	4.763	4.765	(0.957)	156914	20	10
30 2,4-Dichlorophenol		162.00	4.858	4.860	(0.976)	72389	19	10
31 1,2,4-Trichlorobenzene		180.00	4.941	4.943	(0.993)	70204	19	9
33 Naphthalene		128.00	4.988	4.990	(1.002)	303245	20	10
34 4-Chloroaniline		127.00	5.059	5.062	(1.017)	120724	20	10
35 Hexachlorobutadiene		225.00	5.178	5.180	(1.040)	36228	19	10
36 4-Chloro-3-methylphenol		107.00	5.557	5.559	(1.117)	96705	19	10
37 2-Methylnaphthalene		142.00	5.664	5.666	(1.138)	178524	19	10
38 Hexachlorocyclopentadiene		237.00	5.901	5.903	(0.877)	26337	16	8
39 2,4,6-Trichlorophenol		196.00	5.984	5.986	(0.889)	36325	18	9

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.031	6.021	(0.896)	45463	19	9(a)
42 2-Chloronaphthalene	162.00	6.150	6.152	(0.914)	149685	19	9
43 2-Nitroaniline	65.00	6.280	6.282	(0.933)	72306	18	9(a)
44 Dimethylphthalate	163.00	6.505	6.507	(0.967)	190286	19	10
45 2,6-Dinitrotoluene	165.00	6.564	6.567	(0.975)	39746	18	9
46 Acenaphthylene	152.00	6.564	6.567	(0.975)	265160	20	10
47 3-Nitroaniline	138.00	6.695	6.697	(0.995)	51269	19	10(a)
49 Acenaphthene	153.00	6.754	6.756	(1.004)	156473	19	10
51 4-Nitrophenol	109.00	6.908	6.910	(1.026)	24033	19	10(aQM)
52 Dibenzofuran	168.00	6.920	6.922	(1.028)	208482	19	10
53 2,4-Dinitrotoluene	165.00	6.956	6.958	(1.033)	47208	18	9
54 Diethylphthalate	149.00	7.216	7.218	(1.072)	208938	20	10
55 4-Chlorophenyl-phenylether	204.00	7.275	7.278	(1.081)	64354	19	10
56 Fluorene	166.00	7.264	7.266	(1.079)	166505	19	10
57 4-Nitroaniline	138.00	7.311	7.325	(1.086)	46274	17	9(a)
58 4,6-Dinitro-2-methylphenol	198.00	7.382	7.384	(0.900)	6801	12	6(aM)
59 n-Nitrosodiphenylamine	169.00	7.394	7.396	(0.902)	99124	20	10
60 1,2-Diphenylhydrazine	77.00	7.430	7.432	(0.906)	612085	20	10
62 4-Bromophenyl-phenylether	248.00	7.761	7.763	(0.947)	34862	19	10
63 Hexachlorobenzene	283.70	7.904	7.906	(0.964)	39002	20	10
64 Pentachlorophenol	265.50	8.105	8.095	(0.988)	8202	12	6(aM)
66 Phenanthrene	178.00	8.223	8.226	(1.003)	212146	20	10
67 Anthracene	178.00	8.271	8.273	(1.009)	211644	19	10
68 Carbazole	167.00	8.437	8.451	(1.029)	190167	19	10
69 Di-n-butylphthalate	149.00	8.875	8.877	(1.082)	351473	20	10
70 Fluoranthene	202.00	9.432	9.434	(1.150)	181796	19	9
71 Pyrene	202.00	9.657	9.659	(0.885)	186938	21	10
73 Butylbenzylphthalate	149.00	10.380	10.382	(0.951)	150631	20	10
74 3,3'-Dichlorobenzidine	252.00	10.890	10.892	(0.998)	49869	19	10
75 Benzo[a]anthracene	228.00	10.902	10.904	(0.999)	142715	20	10
77 Chrysene	228.00	10.949	10.951	(1.003)	124479	20	10
78 bis(2-Ethylhexyl)phthalate	149.00	11.032	11.034	(1.011)	204172	21	10
79 Di-n-octylphthalate	149.00	11.779	11.781	(0.921)	317442	19	10
80 Benzo[b]fluoranthene	252.00	12.241	12.243	(0.957)	136306	20	10
81 Benzo[k]fluoranthene	252.00	12.276	12.278	(0.960)	126303	19	9
82 Benzo[a]pyrene	252.00	12.703	12.705	(0.994)	104704	20	10
84 Indeno[1,2,3-cd]pyrene	276.00	14.445	14.447	(1.130)	106223	20	10
85 Dibenz[a,h]anthracene	278.00	14.480	14.483	(1.133)	89606	20	10
86 Benzo[g,h,i]perylene	276.00	14.860	14.862	(1.162)	88355	19	10
3 2-Fluorophenol	112.00	2.820	2.822	(0.741)	122127	20	10(R)
4 Phenol-d5	99.00	3.531	3.533	(0.928)	159662	21	10
61 2,4,6-Tribromophenol	329.70	7.536	7.538	(0.919)	15152	18	9
23 Nitrobenzene-d5	82.00	4.313	4.315	(0.867)	134065	19	10(R)
41 2-Fluorobiphenyl	172.00	6.055	6.057	(0.900)	157492	19	9(R)
72 Terphenyl-d14	244.00	9.847	9.849	(0.902)	117904	20	10(R)
11 1,4-Dichlorobenzene-d4	152.00	3.803	3.805	(1.000)	146881	40	
32 Naphthalene-d8	136.00	4.977	4.979	(1.000)	577597	40	
48 Acenaphthene-d10	164.00	6.730	6.721	(1.000)	272047	40	
65 Phenanthrene-d10	188.00	8.200	8.202	(1.000)	342929	40	

Compounds	QUANT SIG					CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)	
-----	----	--	-----	-----	-----	-----	-----	
* 76 Chrysene-d12	240.00	10.914	10.916	(1.000)	236546	40		
* 83 Perylene-d12	264.00	12.786	12.788	(1.000)	153895	40		
17 ortho-Cresol	108.00	4.052	4.054	(1.065)	108450	20	10	
20 meta,para-Cresol	108.00	4.183	4.185	(1.100)	109602	21	10	
96 Benzidine	184.00	9.574	9.577	(0.877)	72798	21	10	

#### QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation (BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

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INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic5.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: 950531 STD020

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	146881	28.53
32 Naphthalene-d8	440783	220392	881566	577597	31.04
48 Acenaphthene-d10	201424	100712	402848	272047	35.06
65 Phenanthrene-d10	261616	130808	523232	342929	31.08
76 Chrysene-d12	195160	97580	390320	236546	21.21
83 Perylene-d12	123342	61671	246684	153895	24.77

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.05
32 Naphthalene-d8	4.98	4.48	5.48	4.98	-0.04
48 Acenaphthene-d10	6.72	6.22	7.22	6.73	0.15
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	-0.03
76 Chrysene-d12	10.92	10.42	11.42	10.91	-0.02
83 Perylene-d12	12.79	12.29	13.29	12.79	-0.02

AREA UPPER LIMIT = +100% of internal standard area.

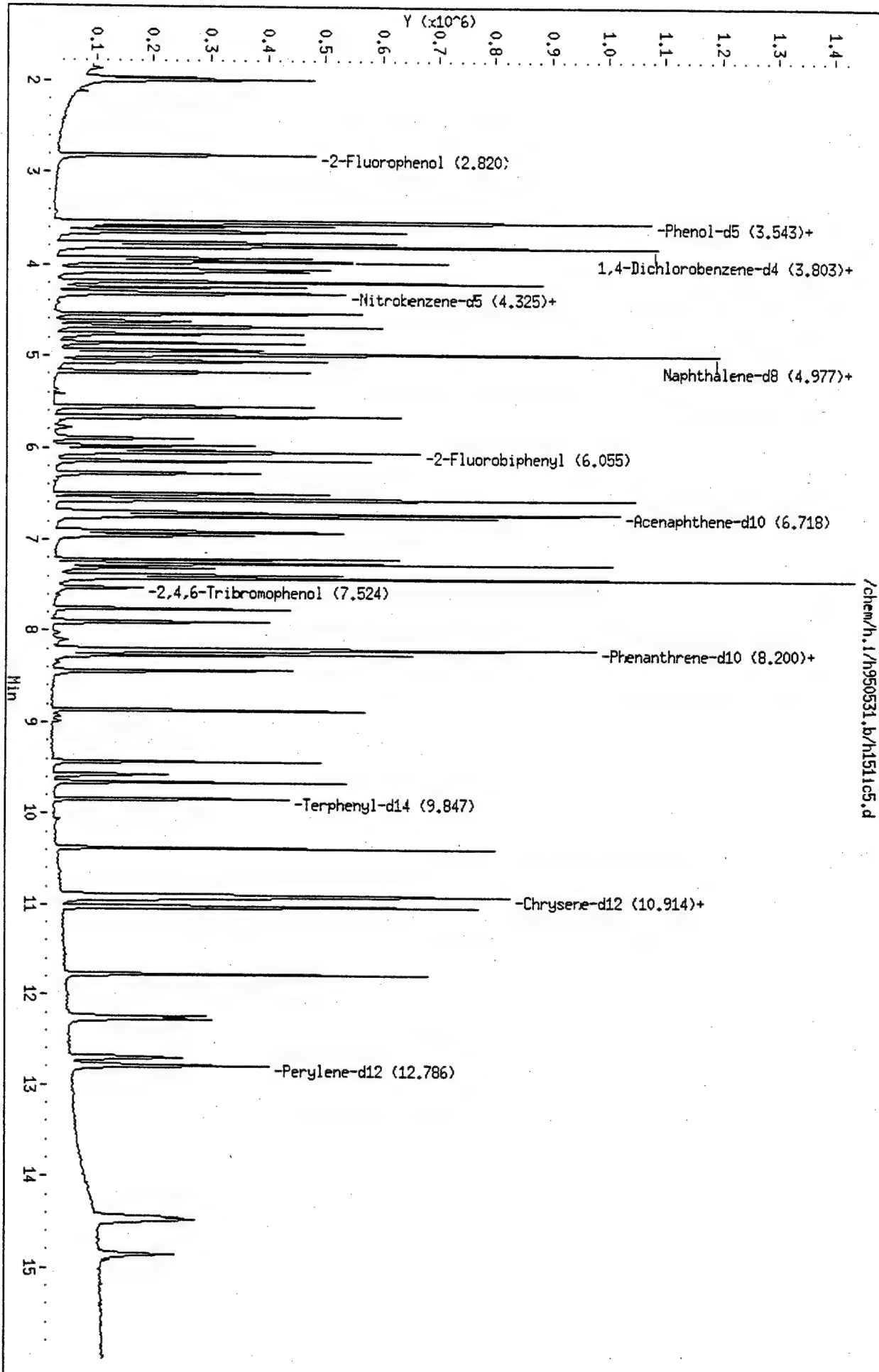
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h151ic5.d  
Date : 31-MAY-95 14:48  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



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Data file : /chem/h.i/h950531.b/h151ic6.d

Lab Smp Id:

Inj Date : 31-MAY-1995 15:09

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD050

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	( ug/L)
2 Pyridine		79.00	1.980	1.980	(0.520)	381957	50	25
5 Phenol		94.00	3.545	3.545	(0.931)	339871	50	25
6 Aniline		93.00	3.545	3.545	(0.931)	363825	50	25
7 bis(2-Chloroethyl) ether		93.00	3.592	3.592	(0.944)	313152	50	25
9 2-Chlorophenol		128.00	3.651	3.651	(0.960)	225798	50	25
10 1,3-Dichlorobenzene		146.00	3.770	3.770	(0.991)	230091	50	25
12 1,4-Dichlorobenzene		146.00	3.817	3.817	(1.003)	222401	50	25
13 Benzyl alcohol		108.00	3.936	3.936	(1.034)	151878	50	25
15 1,2-Dichlorobenzene		146.00	3.983	3.983	(1.047)	213746	50	25
16 2-Methylphenol		108.00	4.054	4.054	(1.065)	211218	50	25
18 bis(2-chloroisopropyl) ether		45.00	4.078	4.078	(1.072)	471874	50	25
19 4-Methylphenol		108.00	4.185	4.185	(1.100)	205508	50	25
21 N-Nitroso-di-n-propylamine		70.00	4.196	4.196	(1.103)	204007	50	25
22 Hexachloroethane		117.00	4.256	4.256	(1.118)	117904	50	25
24 Nitrobenzene		77.00	4.327	4.327	(0.869)	283127	50	25
25 Isophorone		82.00	4.552	4.552	(0.914)	540834	50	25
26 2-Nitrophenol		139.00	4.623	4.623	(0.929)	96524	50	25
27 2,4-Dimethylphenol		107.00	4.682	4.682	(0.940)	231433	50	25
28 Benzoic acid		122.00	4.801	4.801	(0.964)	45166	50	25
29 bis(2-Chloroethoxy) methane		93.00	4.765	4.765	(0.957)	305804	50	25
30 2,4-Dichlorophenol		162.00	4.860	4.860	(0.976)	142725	50	25
31 1,2,4-Trichlorobenzene		180.00	4.943	4.943	(0.993)	143025	50	25
33 Naphthalene		128.00	4.990	4.990	(1.002)	584560	50	25
34 4-Chloroaniline		127.00	5.062	5.062	(1.017)	235323	50	25
35 Hexachlorobutadiene		225.00	5.180	5.180	(1.040)	70919	50	25
36 4-Chloro-3-methylphenol		107.00	5.559	5.559	(1.117)	190207	50	25
37 2-Methylnaphthalene		142.00	5.666	5.666	(1.138)	349367	50	25
38 Hexachlorocyclopentadiene		237.00	5.903	5.903	(0.878)	60387	50	25
39 2,4,6-Trichlorophenol		196.00	5.986	5.986	(0.891)	73501	50	25

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.021	6.021	(0.896)	89453	50	25
42 2-Chloronaphthalene	162.00	6.152	6.152	(0.915)	295802	50	25
43 2-Nitroaniline	65.00	6.282	6.282	(0.935)	145379	50	25
44 Dimethylphthalate	163.00	6.507	6.507	(0.968)	365363	50	25
45 2,6-Dinitrotoluene	165.00	6.567	6.567	(0.977)	79786	50	25
46 Acenaphthylene	152.00	6.567	6.567	(0.977)	499162	50	25
47 3-Nitroaniline	138.00	6.697	6.697	(0.996)	98902	50	25
49 Acenaphthene	153.00	6.756	6.756	(1.005)	297851	50	25
50 2,4-Dinitrophenol	184.00	6.815	6.815	(1.014)	6383	50	25 (M)
51 4-Nitrophenol	109.00	6.910	6.910	(1.028)	45806	50	25
52 Dibenzofuran	168.00	6.922	6.922	(1.030)	402130	50	25
53 2,4-Dinitrotoluene	165.00	6.958	6.958	(1.035)	95419	50	25
54 Diethylphthalate	149.00	7.218	7.218	(1.074)	393874	50	25
55 4-Chlorophenyl-phenylether	204.00	7.278	7.278	(1.083)	123652	50	25
56 Fluorene	166.00	7.266	7.266	(1.081)	323624	50	25
57 4-Nitroaniline	138.00	7.325	7.325	(1.090)	98042	50	25
58 4,6-Dinitro-2-methylphenol	198.00	7.384	7.384	(0.900)	21106	50	25 (M)
59 n-Nitrosodiphenylamine	169.00	7.396	7.396	(0.902)	184449	50	25
60 1,2-Diphenylhydrazine	77.00	7.432	7.432	(0.906)	1155693	50	25
62 4-Bromophenyl-phenylether	248.00	7.763	7.763	(0.947)	68283	50	25
63 Hexachlorobenzene	283.70	7.906	7.906	(0.964)	74795	50	25
64 Pentachlorophenol	265.50	8.095	8.095	(0.987)	26129	50	25 (M)
66 Phenanthrene	178.00	8.226	8.226	(1.003)	409912	50	25
67 Anthracene	178.00	8.273	8.273	(1.009)	423089	50	25
68 Carbazole	167.00	8.451	8.451	(1.030)	378067	50	25
69 Di-n-butylphthalate	149.00	8.877	8.877	(1.082)	673666	50	25
70 Fluoranthene	202.00	9.434	9.434	(1.150)	365338	50	25
71 Pyrene	202.00	9.659	9.659	(0.885)	374033	50	25
73 Butylbenzylphthalate	149.00	10.382	10.382	(0.951)	304084	50	25
74 3,3'-Dichlorobenzidine	252.00	10.892	10.892	(0.998)	106972	50	25
75 Benzo[a]anthracene	228.00	10.904	10.904	(0.999)	296729	50	25
77 Chrysene	228.00	10.951	10.951	(1.003)	258173	50	25
78 bis(2-Ethylhexyl)phthalate	149.00	11.034	11.034	(1.011)	402654	50	25
79 Di-n-octylphthalate	149.00	11.781	11.781	(0.921)	658002	50	25
80 Benzo[b]fluoranthene	252.00	12.243	12.243	(0.957)	277456	50	25
81 Benzo[k]fluoranthene	252.00	12.278	12.278	(0.960)	269838	50	25
82 Benzo[a]pyrene	252.00	12.705	12.705	(0.994)	213543	50	25
84 Indeno[1,2,3-cd]pyrene	276.00	14.447	14.447	(1.130)	218143	50	25
85 Dibenz[a,h]anthracene	278.00	14.483	14.483	(1.133)	181511	50	25
86 Benzo[g,h,i]perylene	276.00	14.862	14.862	(1.162)	182378	50	25
\$ 3 2-Fluorophenol	112.00	2.822	2.822	(0.742)	231511	50	25
\$ 4 Phenol-d5	99.00	3.533	3.533	(0.928)	297261	50	25
\$ 61 2,4,6-Tribromophenol	329.70	7.538	7.538	(0.919)	32558	50	25
\$ 23 Nitrobenzene-d5	82.00	4.315	4.315	(0.867)	264640	50	25
\$ 41 2-Fluorobiphenyl	172.00	6.057	6.057	(0.901)	310387	50	25
\$ 72 Terphenyl-d14	244.00	9.849	9.849	(0.902)	245238	50	25
* 11 1,4-Dichlorobenzene-d4	152.00	3.805	3.805	(1.000)	114276	40	
* 32 Naphthalene-d8	136.00	4.979	4.979	(1.000)	440783	40	
* 48 Acenaphthene-d10	164.00	6.721	6.721	(1.000)	201424	40	



Compounds	QUANT SIG					CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng/ )	FINAL ( ug/L )	
65 Phenanthrene-d10	188.00	8.202	8.202	(1.000)	261616	40		
76 Chrysene-d12	240.00	10.916	10.916	(1.000)	195160	40		
83 Perylene-d12	264.00	12.788	12.788	(1.000)	123342	40		
17 ortho-Cresol	108.00	4.054	4.054	(1.065)	211218	50	25	
20 meta,para-Cresol	108.00	4.185	4.185	(1.100)	205508	50	25	
96 Benzidine	184.00	9.577	9.577	(0.877)	144034	50	25	

QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic6.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531 b/hclpw.m  
Misc Info: 950531 STD050

Calibration Date: 05/31/95

Calibration Time: 1509

Level: LOW

Sample Type: WATER

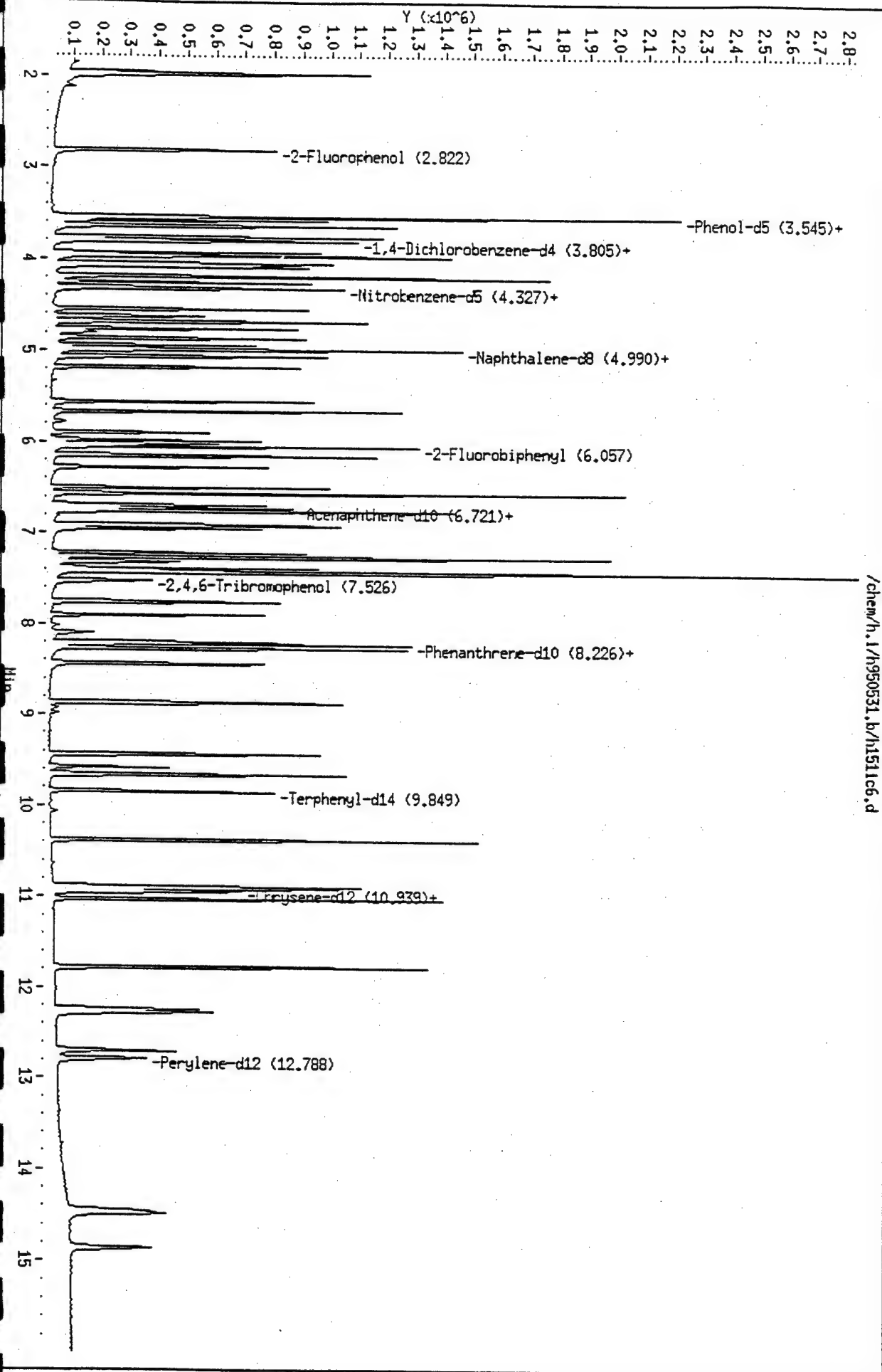
COMPOUND =====	STANDARD =====	AREA LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
11 1,4-Dichlorobenzene-	114276	57138	228552	114276	0.00
32 Naphthalene-d8	440783	220392	881566	440783	0.00
48 Acenaphthene-d10	201424	100712	402848	201424	0.00
65 Phenanthrene-d10	261616	130808	523232	261616	0.00
76 Chrysene-d12	195160	97580	390320	195160	0.00
83 Perylene-d12	123342	61671	246684	123342	0.00

COMPOUND =====	STANDARD =====	RT LIMIT		SAMPLE =====	% DIFF =====
		LOWER =====	UPPER =====		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.81	0.00
32 Naphthalene-d8	4.98	4.48	5.48	4.98	0.00
48 Acenaphthene-d10	6.72	6.22	7.22	6.72	0.00
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	0.00
76 Chrysene-d12	10.92	10.42	11.42	10.92	0.00
83 Perylene-d12	12.79	12.29	13.29	12.79	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c6.d  
 Date : 31-MAY-95 15:09  
 Client ID:  
 Sample Info: STD-82704/1X  
 Volume Injected (uL): 2.0  
 Column phase:

Instrument: h.1  
 Operator: LH  
 Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic2.d

Lab Smp Id:

Inj Date : 31-MAY-1995 13:39

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD080

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 3

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
=====	----	==	-----	-----	-----	-----	-----	
2 Pyridine	79.00	1.994	1.980	(0.524)	415953	65	32	
5 Phenol	94.00	3.546	3.545	(0.931)	452360	79	40	
6 Aniline	93.00	3.546	3.545	(0.931)	477001	78	39	
7 bis(2-Chloroethyl)ether	93.00	3.593	3.592	(0.944)	401085	76	38	
9 2-Chlorophenol	128.00	3.653	3.651	(0.960)	300575	79	40	
10 1,3-Dichlorobenzene	146.00	3.771	3.770	(0.991)	312036	81	40	
12 1,4-Dichlorobenzene	146.00	3.819	3.817	(1.003)	298630	80	40	
13 Benzyl alcohol	108.00	3.937	3.936	(1.034)	186862	73	37	
15 1,2-Dichlorobenzene	146.00	3.973	3.983	(1.044)	278099	78	39	
16 2-Methylphenol	108.00	4.056	4.054	(1.065)	270133	76	38	
18 bis(2-chloroisopropyl)ether	45.00	4.079	4.078	(1.072)	631030	80	40	
19 4-Methylphenol	108.00	4.186	4.185	(1.100)	271793	79	39	
21 N-Nitroso-di-n-propylamine	70.00	4.198	4.196	(1.103)	278803	82	41	
22 Hexachloroethane	117.00	4.257	4.256	(1.118)	152901	77	39	
24 Nitrobenzene	77.00	4.328	4.327	(0.871)	369220	78	39	
25 Isophorone	82.00	4.541	4.552	(0.914)	707619	78	39	
26 2-Nitrophenol	139.00	4.624	4.623	(0.931)	129809	80	40	
27 2,4-Dimethylphenol	107.00	4.684	4.682	(0.943)	293210	76	38	
28 Benzoic acid	122.00	4.802	4.801	(0.967)	74781	99	50	
29 bis(2-Chloroethoxy)methane	93.00	4.755	4.765	(0.957)	395688	78	39	
30 2,4-Dichlorophenol	162.00	4.861	4.860	(0.979)	189287	79	40	
31 1,2,4-Trichlorobenzene	180.00	4.932	4.943	(0.993)	185827	78	39	
33 Naph' halene	128.00	4.992	4.990	(1.005)	778645	80	40	
34 4-Chloroaniline	127.00	5.063	5.062	(1.019)	308239	78	39	
35 Hexachlorobutadiene	225.00	5.181	5.180	(1.043)	87978	74	37	
36 4-Chloro-3-methylphenol	107.00	5.561	5.559	(1.119)	228043	72	36	
37 2-Methylnaphthalene	142.00	5.667	5.666	(1.141)	469474	80	40	
38 Hexachlorocyclopentadiene	237.00	5.904	5.903	(0.878)	76999	78	39	
39 2,4,6-Trichlorophenol	196.00	5.975	5.986	(0.889)	93939	78	39	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	194.00	6.023	6.021	(0.896)	121060	83	41
42 2-Chloronaphthalene	162.00	6.141	6.152	(0.914)	368554	76	38
43 2-Nitroaniline	65.00	6.272	6.282	(0.933)	189384	80	40
44 Dimethylphthalate	163.00	6.497	6.507	(0.967)	448981	75	38
45 2,6-Dinitrotoluene	165.00	6.556	6.567	(0.975)	99331	76	38
46 Acenaphthylene	152.00	6.568	6.567	(0.977)	662344	81	41
47 3-Nitroaniline	138.00	6.698	6.697	(0.996)	123741	77	38
49 Acenaphthene	153.00	6.746	6.756	(1.004)	387555	80	40
50 2,4-Dinitrophenol	184.00	6.817	6.815	(1.014)	6928	66	33 (M)
51 4-Nitrophenol	109.00	6.900	6.910	(1.026)	65329	87	44
52 Dibenzofuran	168.00	6.911	6.922	(1.028)	533414	81	41
53 2,4-Dinitrotoluene	165.00	6.947	6.958	(1.033)	121112	78	39
54 Diethylphthalate	149.00	7.220	7.218	(1.074)	530199	82	41
55 4-Chlorophenyl-phenylether	204.00	7.267	7.278	(1.081)	174721	86	43
56 Fluorene	166.00	7.255	7.266	(1.079)	420891	80	40
57 4-Nitroaniline	138.00	7.314	7.325	(1.088)	116367	73	36
58 4,6-Dinitro-2-methylphenol	198.00	7.374	7.384	(0.900)	22333	67	34 (M)
59 n-Nitrosodiphenylamine	169.00	7.397	7.396	(0.903)	244111	84	42
60 1,2-Diphenylhydrazine	77.00	7.421	7.432	(0.906)	1459953	80	40
62 4-Bromophenyl-phenylether	248.00	7.753	7.763	(0.946)	91961	86	43
63 Hexachlorobenzene	283.70	7.895	7.906	(0.964)	96450	82	41
64 Pentachlorophenol	265.50	8.085	8.095	(0.987)	30919	75	38 (M)
66 Phenanthrene	176.00	8.215	8.226	(1.003)	523738	81	41
67 Anthracene	178.00	8.262	8.273	(1.009)	558586	84	42
68 Carbazole	167.00	8.428	8.451	(1.029)	473529	80	40
69 Di-n-butylphthalate	149.00	8.855	8.877	(1.081)	928397	88	44
70 Fluoranthene	202.00	9.412	9.434	(1.149)	463439	81	40
71 Pyrene	202.00	9.637	9.659	(0.888)	469113	83	42
73 Butylbenzylphthalate	149.00	10.336	10.382	(0.952)	394828	86	43
74 3,3'-Dichlorobenzidine	252.00	10.834	10.892	(0.998)	128677	80	40
75 Benzo[a]anthracene	228.00	10.846	10.904	(0.999)	373049	84	42
77 Chrysene	228.00	10.893	10.951	(1.003)	328185	85	42
78 bis(2-Ethylhexyl)phthalate	149.00	10.964	11.034	(1.010)	515072	85	42
79 Di-n-octylphthalate	149.00	11.699	11.781	(0.922)	859115	87	44
80 Benzo[b]fluoranthene	252.00	12.161	12.243	(0.958)	291949	70	35
81 Benzo[k]fluoranthene	252.00	12.197	12.278	(0.961)	364490	90	45
82 Benzo[a]pyrene	252.00	12.611	12.705	(0.993)	253320	79	40
84 Indeno[1,2,3-cd]pyrene	276.00	14.342	14.447	(1.130)	257312	79	39
85 Dibenz[a,h]anthracene	278.00	14.365	14.483	(1.132)	213972	78	39
86 Benzo[g,h,i]perylene	276.00	14.733	14.862	(1.161)	211377	77	39
3 2-Fluorophenol	112.00	2.823	2.822	(0.742)	331776	86	43
4 Phenol-d5	99.00	3.534	3.533	(0.928)	390302	78	39
61 2,4,6-Tribromophenol	329.70	7.528	7.538	(0.919)	44633	87	44
23 Nitrobenzene-d5	87.00	4.304	4.315	(0.866)	360033	81	41
41 2-Fluorobiphenyl	172.00	6.058	6.057	(0.901)	395240	78	39
72 Terphenyl-d14	244.00	9.815	9.849	(0.904)	310442	84	42
11 1,4-Dichlorobenzene-d4	152.00	3.807	3.805	(1.000)	95746	40	
32 Naphthalene-d8	136.00	4.968	4.979	(1.000)	367914	40	
48 Acenaphthene-d10	164.00	6.722	6.721	(1.000)	164365	40	

Compounds	QUANT SIG			REL RT	RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT			ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.191	8.202	(1.000)	205720	40	
* 76 Chrysene-d12	240.00	10.858	10.916	(1.000)	146610	40	
* 83 Perylene-d12	264.00	12.694	12.788	(1.000)	92503	40	
17 ortho-Cresol	108.00	4.056	4.054	(1.065)	270133	76	38
20 meta,para-Cresol	108.00	4.186	4.185	(1.100)	271793	79	39
96 Benzidine	184.00	9.542	9.577	(0.879)	161688	75	37

QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic2.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: 950531 STD080

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	95746	-16.22
32 Naphthalene-d8	440783	220392	881566	367914	-16.53
48 Acenaphthene-d10	201424	100712	402848	164365	-18.40
65 Phenanthrene-d10	261616	130808	523232	205720	-21.37
76 Chrysene-d12	195160	97580	390320	146610	-24.88
83 Perylene-d12	123342	61671	246684	92503	-25.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.81	0.03
32 Naphthalene-d8	4.98	4.48	5.48	4.97	-0.21
48 Acenaphthene-d10	6.72	6.22	7.22	6.72	0.02
65 Phenanthrene-d10	8.20	7.70	8.70	8.19	-0.13
76 Chrysene-d12	10.92	10.42	11.42	10.86	-0.53
83 Perylene-d12	12.79	12.29	13.29	12.69	-0.73

AREA UPPER LIMIT = +100% of internal standard area.

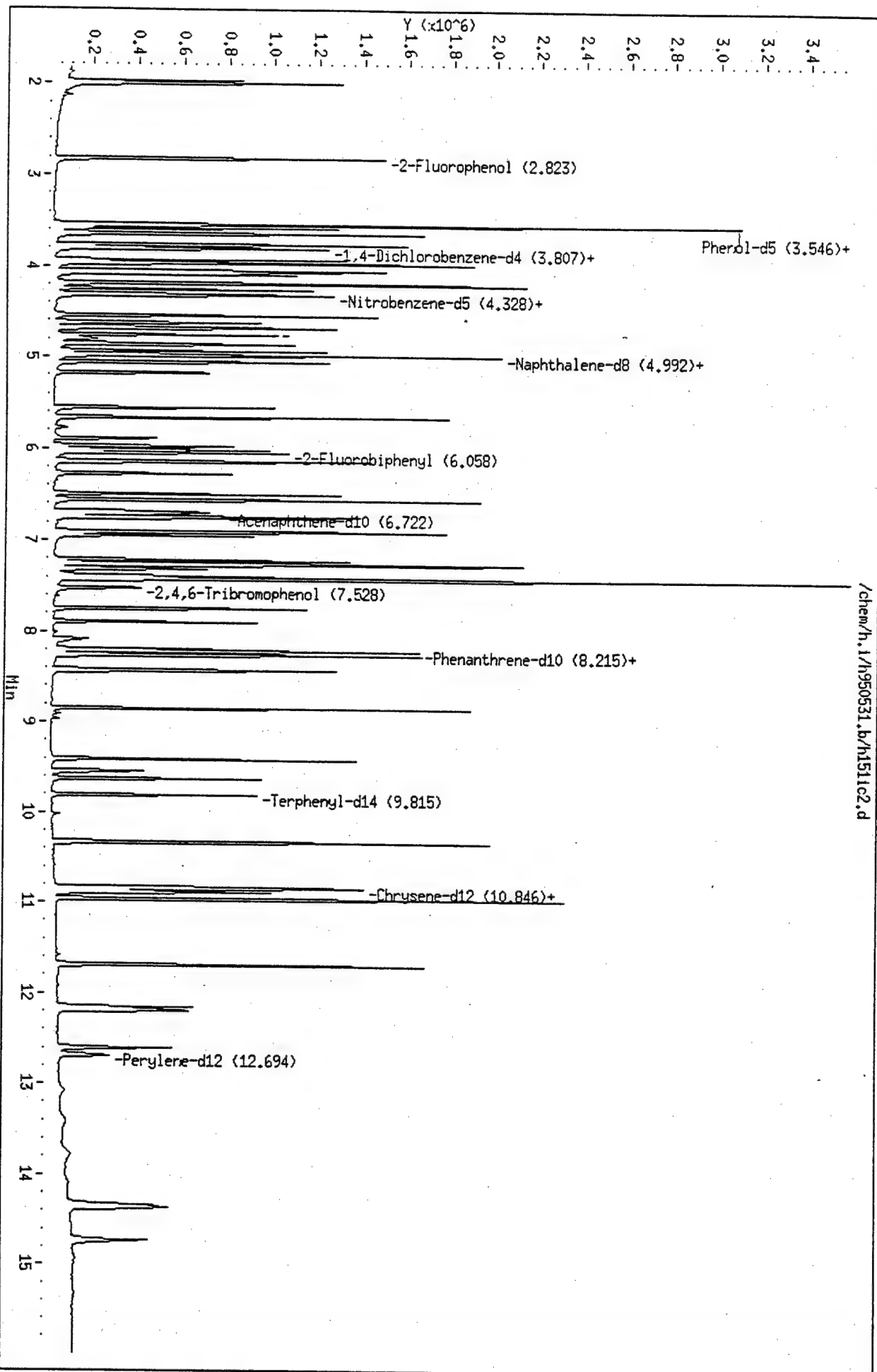
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c2.d  
Date : 31-MAY-95 13:39  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25





Report Date: 31-May-1995 16:06

## SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic3.d

Lab Smp Id:

Inj Date : 31-MAY-1995 14:03

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD120

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 4

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	1.977	1.980	(0.520)	1448925	140	68
5 Phenol	94.00	3.553	3.545	(0.935)	1157643	120	61
6 Aniline	93.00	3.553	3.545	(0.935)	1273478	130	63
7 bis(2-Chloroethyl)ether	93.00	3.601	3.592	(0.947)	949420	110	54
9 2-Chlorophenol	128.00	3.648	3.651	(0.959)	803467	130	64
10 1,3-Dichlorobenzene	146.00	3.767	3.770	(0.991)	916193	140	72
12 1,4-Dichlorobenzene	146.00	3.814	3.817	(1.003)	940975	150	76
13 Benzyl alcohol	108.00	3.933	3.936	(1.034)	437407	100	52
15 1,2-Dichlorobenzene	146.00	3.980	3.983	(1.047)	798912	130	67
16 2-Methylphenol	108.00	4.051	4.054	(1.065)	645711	110	55
18 bis(2-chloroisopropyl)ether	45.00	4.087	4.078	(1.075)	1463198	110	56
19 4-Methylphenol	108.00	4.193	4.185	(1.103)	622430	110	54
21 N-Nitroso-di-n-propylamine	70.00	4.193	4.196	(1.103)	504947	89	44
22 Hexachloroethane	117.00	4.253	4.256	(1.118)	392199	120	60
24 Nitrobenzene	77.00	4.324	4.327	(0.871)	827718	140	69
25 Isophorone	82.00	4.549	4.552	(0.916)	1241155	110	54
26 2-Nitrophenol	139.00	4.620	4.623	(0.931)	300185	150	74
27 2,4-Dimethylphenol	107.00	4.679	4.682	(0.943)	607678	120	62
28 Benzoic acid	122.00	4.821	4.801	(0.971)	156445	160	82 (M)
29 bis(2-Chloroethoxy)methane	93.00	4.750	4.765	(0.957)	748207	120	58
30 2,4-Dichlorophenol	162.00	4.857	4.860	(0.979)	372649	120	62
31 1,2,4-Trichlorobenzene	180.00	4.928	4.943	(0.993)	429131	140	71
33 Naphthalene	128.00	4.987	4.990	(1.005)	1666249	140	68
34 4-Chloroaniline	127.00	5.058	5.062	(1.019)	587433	120	59
35 Hexachlorobutadiene	225.00	5.165	5.180	(1.041)	212862	140	71
36 4-Chloro-3-methylphenol	107.00	5.544	5.559	(1.117)	431022	110	54
37 2-Methylnaphthalene	142.00	5.651	5.666	(1.138)	847470	120	58
38 Hexachlorocyclopentadiene	237.00	5.888	5.903	(0.878)	177232	200	100
39 2,4,6-Trichlorophenol	196.00	5.971	5.986	(0.890)	156095	150	74

Compounds	QUANT SIG				RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT		ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.006	6.021	(0.896)	202363	160	79
42 2-Chloronaphthalene	162.00	6.137	6.152	(0.915)	620589	150	73
43 2-Nitroaniline	65.00	6.267	6.282	(0.935)	277799	130	56
44 Dimethylphthalate	163.00	6.480	6.507	(0.966)	597970	110	57
45 2,6-Dinitrotoluene	165.00	6.540	6.567	(0.975)	143979	120	63
46 Acenaphthylene	152.00	6.551	6.567	(0.977)	1015816	140	71
47 3-Nitroaniline	138.00	6.682	6.697	(0.996)	181497	130	64
49 Acenaphthene	153.00	6.729	6.756	(1.004)	572581	130	57
50 2,4-Dinitrophenol	184.00	6.788	6.815	(1.012)	15749	170	86 (QM)
51 4-Nitrophenol	109.00	6.883	6.910	(1.026)	97350	150	74
52 Dibenzofuran	168.00	6.895	6.922	(1.028)	783292	140	68
53 2,4-Dinitrotoluene	165.00	6.931	6.958	(1.034)	164423	120	60
54 Diethylphthalate	149.00	7.191	7.218	(1.072)	640423	110	57
55 4-Chlorophenyl-phenylether	204.00	7.239	7.278	(1.080)	231529	130	65
56 Fluorene	166.00	7.239	7.266	(1.080)	615057	130	66
57 4-Nitroaniline	138.00	7.298	7.325	(1.088)	170213	120	60
58 4,6-Dinitro-2-methylphenol	198.00	7.357	7.384	(0.900)	36225	150	74 (M)
59 n-Nitrosodiphenylamine	169.00	7.369	7.396	(0.901)	317129	150	74
60 1,2-Diphenylhydrazine	77.00	7.405	7.432	(0.906)	1987407	150	74
62 4-Bromophenyl-phenylether	248.00	7.725	7.763	(0.945)	113468	140	71
63 Hexachlorobenzene	283.70	7.879	7.906	(0.964)	136449	160	78
64 Pentachlorophenol	265.50	8.068	8.095	(0.987)	36030	120	59 (M)
66 Phenanthrene	178.00	8.199	8.226	(1.003)	675036	140	71 (M)
67 Anthracene	178.00	8.234	8.273	(1.007)	672079	140	68
68 Carbazole	167.00	8.412	8.451	(1.029)	649857	150	74
69 Di-n-butylphthalate	149.00	8.827	8.877	(1.080)	1057657	130	67
70 Fluoranthene	202.00	9.396	9.434	(1.149)	613788	140	72
71 Pyrene	202.00	9.621	9.659	(0.886)	637426	140	69
73 Butylbenzylphthalate	149.00	10.332	10.382	(0.952)	499095	130	66
74 3,3'-Dichlorobenzidine	252.00	10.829	10.892	(0.998)	194700	150	74
75 Benzo[a]anthracene	228.00	10.841	10.904	(0.999)	537034	150	73
77 Chrysene	228.00	10.889	10.951	(1.003)	460067	140	72
78 bis(2-Ethylhexyl)phthalate	149.00	10.960	11.034	(1.010)	672930	140	68
79 Di-n-octylphthalate	149.00	11.695	11.781	(0.922)	1145478	140	69
80 Benzo[b]fluoranthene	252.00	12.157	12.243	(0.958)	486511	140	69
81 Benzo[k]fluoranthene	252.00	12.192	12.278	(0.961)	442217	130	65
82 Benzo[a]pyrene	252.00	12.607	12.705	(0.993)	384187	140	71
84 Indeno[1,2,3-cd]pyrene	276.00	14.337	14.447	(1.130)	389966	140	71
85 Dibenz[a,h]anthracene	278.00	14.373	14.483	(1.133)	327246	140	71
86 Benzo[g,h,i]perylene	276.00	14.740	14.862	(1.162)	315900	140	68
\$ 3 2-Fluorophenol	112.00	2.819	2.822	(0.741)	981645	150	76
\$ 4 Phenol-d5	99.00	3.542	3.533	(0.931)	1044464	130	63
\$ 61 2,4,6-Tribromophenol	329.70	7.500	7.538	(0.917)	57995	150	76
\$ 23 Nitrobenzene-d5	82.00	4.312	4.315	(0.869)	811562	140	73 (R)
\$ 41 2-Fluorobiphenyl	172.00	6.042	6.057	(0.901)	691219	160	78 (R)
\$ 72 Terphenyl-d14	244.00	9.798	9.849	(0.903)	429449	140	71 (R)
* 11 1,4-Dichlorobenzene-d4	152.00	3.802	3.805	(1.000)	158656	40	
* 32 Naphthalene-d8	136.00	4.964	4.979	(1.000)	464166	40	
* 48 Acenaphthene-d10	164.00	6.706	6.721	(1.000)	144638	40	

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						( ng)	( ug/L)
=====	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.175	8.202	(1.000)	152127	40	
* 76 Chrysene-d12	240.00	10.853	10.916	(1.000)	120301	40	
* 83 Perylene-d12	264.00	12.690	12.788	(1.000)	78009	40	
17 ortho-Cresol	108.00	4.051	4.054	(1.065)	645711	110	55
20 meta,para-Cresol	108.00	4.193	4.185	(1.103)	622430	110	54
96 Benzidine	184.00	9.538	9.577	(0.879)	238007	130	67

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h151ic3.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950531.b/hclpw.m  
 Misc Info: 950531 STD120

Calibration Date: 05/31/95  
 Calibration Time: 1509

Level: LOW  
 Sample Type: WATER

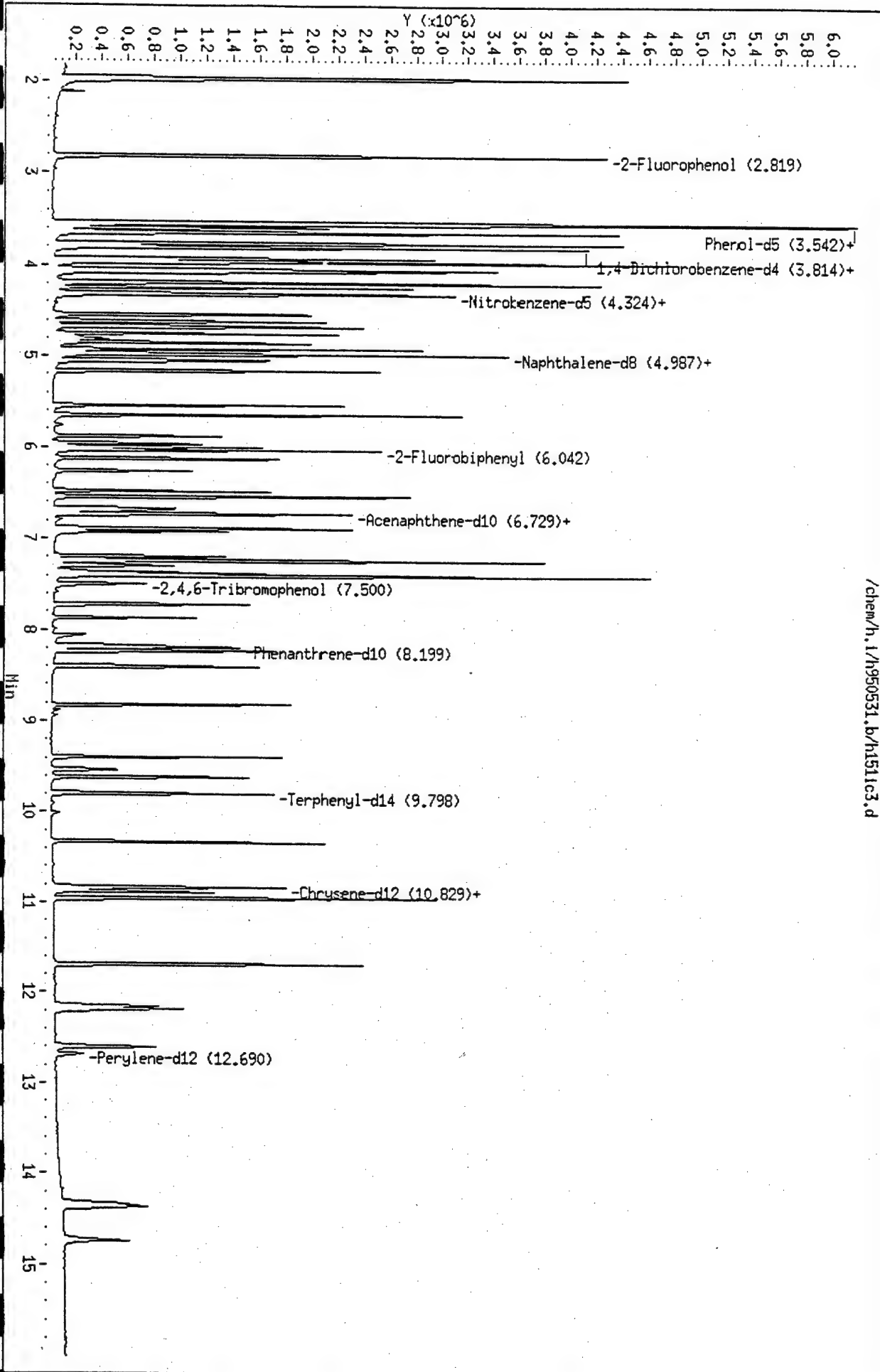
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	158656	38.84
32 Naphthalene-d8	440783	220392	881566	464166	5.30
48 Acenaphthene-d10	201424	100712	402848	144638	-28.19
65 Phenanthrene-d10	261616	130808	523232	152127	-41.85
76 Chrysene-d12	195160	97580	390320	120301	-38.36
83 Perylene-d12	123342	61671	246684	78009	-36.75

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.08
32 Naphthalene-d8	4.98	4.48	5.48	4.96	-0.30
48 Acenaphthene-d10	6.72	6.22	7.22	6.71	-0.22
65 Phenanthrene-d10	8.20	7.70	8.70	8.17	-0.33
76 Chrysene-d12	10.92	10.42	11.42	10.85	-0.57
83 Perylene-d12	12.79	12.29	13.29	12.69	-0.77

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c3.d  
Date: 31-MAY-95 14:03  
Client ID:  
Sample Info: STD-82704/LX  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic4.d

Lab Smp Id:

Inj Date : 31-MAY-1995 14:26

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD160

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	( ug/L)
2 Pyridine		79.00	1.978	1.980	(0.520)	1770116	130	66
5 Phenol		94.00	3.554	3.545	(0.935)	1628285	140	69
6 Aniline		93.00	3.554	3.545	(0.935)	1815840	140	72
7 bis(2-Chloroethyl)ether		93.00	3.601	3.592	(0.947)	1493001	140	68
9 2-Chlorophenol		128.00	3.661	3.651	(0.963)	1242681	160	79
10 1,3-Dichlorobenzene		146.00	3.767	3.770	(0.991)	1288440	160	80
12 1,4-Dichlorobenzene		146.00	3.815	3.817	(1.003)	1385625	180	89
13 Benzyl alcohol		108.00	3.945	3.936	(1.037)	796541	150	75
15 1,2-Dichlorobenzene		146.00	3.981	3.983	(1.047)	1293350	170	87
16 2-Methylphenol		108.00	4.064	4.054	(1.069)	1093871	150	74
18 bis(2-chloroisopropyl)ether		45.00	4.075	4.078	(1.072)	2481850	150	75
19 4-Methylphenol		108.00	4.194	4.185	(1.103)	1101739	150	77
21 N-Nitroso-di-n-propylamine		70.00	4.206	4.196	(1.106)	991970	140	70
22 Hexachloroethane		117.00	4.253	4.256	(1.118)	575708	140	70
24 Nitrobenzene		77.00	4.324	4.327	(0.871)	1382695	150	73
25 Isophorone		82.00	4.549	4.552	(0.916)	2797873	150	77
26 2-Nitrophenol		139.00	4.620	4.623	(0.931)	566401	180	88
27 2,4-Dimethylphenol		107.00	4.680	4.682	(0.943)	1139556	150	74
28 Benzoic acid		122.00	4.857	4.801	(0.979)	365421	240	120 (M)
29 bis(2-Chloroethoxy)methane		93.00	4.763	4.765	(0.959)	1564817	150	76
30 2,4-Dichlorophenol		162.00	4.857	4.860	(0.979)	787253	160	82
31 1,2,4-Trichlorobenzene		180.00	4.929	4.943	(0.993)	793200	160	83
33 Naphthalene		128.00	4.988	4.990	(1.005)	3228741	160	83
34 4-Chloroaniline		127.00	5.059	5.062	(1.019)	1284076	160	82
35 Hexachlorobutadiene		225.00	5.166	5.180	(1.041)	382991	160	81
36 4-Chloro-3-methylphenol		107.00	5.545	5.559	(1.117)	878549	140	69
37 2-Methylnaphthalene		142.00	5.663	5.666	(1.141)	2017891	170	86
38 Hexachlorocyclopentadiene		237.00	5.888	5.903	(0.878)	436411	230	110
39 2,4,6-Trichlorophenol		196.00	5.971	5.986	(0.890)	446516	190	95

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.019	6.021	(0.897)	423243	150	74
42 2-Chloronaphthalene	152.00	6.137	6.152	(0.915)	1657720	180	88
43 2-Nitroaniline	55.00	6.268	6.282	(0.935)	710475	150	76
44 Dimethylphthalate	153.00	6.493	6.507	(0.968)	1785673	150	76
45 2,6-Dinitrotoluene	155.00	6.552	6.567	(0.977)	428364	170	84 (Q)
46 Acenaphthylene	152.00	6.552	6.567	(0.977)	2580517	160	81
47 3-Nitroaniline	138.00	6.694	6.697	(0.998)	506352	160	80
49 Acenaphthene	153.00	6.742	6.756	(1.005)	1648029	170	87
50 2,4-Dinitrophenol	184.00	6.801	6.815	(1.014)	69896	340	170 (QM)
51 4-Nitrophenol	109.00	6.884	6.910	(1.026)	239846	160	82
52 Dibenzofuran	168.00	6.896	6.922	(1.028)	2049719	160	80
53 2,4-Dinitrotoluene	155.00	6.943	6.958	(1.035)	496648	160	82
54 Diethylphthalate	149.00	7.204	7.218	(1.074)	1813072	140	72
55 4-Chlorophenyl-phenylether	204.00	7.251	7.278	(1.081)	738019	190	94
56 Fluorene	156.00	7.239	7.266	(1.079)	1620793	160	78
57 4-Nitroaniline	138.00	7.311	7.325	(1.090)	429522	140	69
58 4,6-Dinitro-2-methylphenol	198.00	7.370	7.384	(0.901)	152927	270	130 (M)
59 n-Nitrosodiphenylamine	159.00	7.382	7.396	(0.903)	906859	180	91
60 1,2-Diphenylhydrazine	77.00	7.417	7.432	(0.907)	4752929	150	76
62 4-Bromophenyl-phenylether	248.00	7.737	7.763	(0.946)	377620	200	100
63 Hexachlorobenzene	283.70	7.879	7.906	(0.964)	372680	180	92
64 Pentachlorophenol	265.50	8.069	8.095	(0.987)	141415	200	100 (M)
66 Phenanthrene	178.00	8.199	8.226	(1.003)	2030552	180	92
67 Anthracene	178.00	8.247	8.273	(1.009)	2085842	180	91
68 Carbazole	167.00	8.413	8.451	(1.029)	1742614	170	85
69 Di-n-butylphthalate	149.00	8.839	8.877	(1.081)	3152542	170	87
70 Fluoranthene	202.00	9.396	9.434	(1.149)	1570134	160	80
71 Pyrene	202.00	9.621	9.659	(0.885)	1612220	190	94
73 Butylbenzylphthalate	149.00	10.332	10.382	(0.951)	1130735	160	82
74 3,3'-Dichlorobenzidine	252.00	10.842	10.892	(0.998)	474785	190	97
75 Benzo[a]anthracene	228.00	10.889	10.904	(1.002)	1033122	150	76
77 Chrysene	228.00	10.889	10.951	(1.002)	1033122	180	88
78 bis(2-Ethylhexyl)phthalate	149.00	10.960	11.034	(1.009)	1453374	160	79
79 Di-n-octylphthalate	149.00	11.695	11.781	(0.922)	2323993	170	85
80 Benzo[b]fluoranthene	252.00	12.169	12.243	(0.959)	896425	150	77
81 Benzo[k]fluoranthene	252.00	12.169	12.278	(0.959)	896425	160	80
82 Benzo[a]pyrene	252.00	12.619	12.705	(0.994)	780408	180	88
84 Indeno[1,2,3-cd]pyrene	276.00	14.350	14.447	(1.131)	787019	170	86
85 Dibenz[a,h]anthracene	278.00	14.385	14.483	(1.134)	678554	180	90
86 Benzo[g,h,i]perylene	276.00	14.752	14.862	(1.162)	625258	160	82
\$ 3 2-Fluorophenol	112.00	2.819	2.822	(0.741)	1261695	160	78
\$ 4 Phenol-d5	99.00	3.542	3.533	(0.931)	1484456	140	72
\$ 61 2,4,6-Tribromophenol	329.70	7.512	7.538	(0.919)	197885	220	110 (R)
\$ 23 Nitrobenzene-d5	82.00	4.312	4.315	(0.869)	1431210	160	81 (R)
\$ 41 2-Fluorobiphenyl	172.00	6.043	6.057	(0.901)	1635257	160	82 (R)
\$ 72 Terphenyl-d14	244.00	9.799	9.849	(0.902)	1042653	190	93 (R)
* 11 1,4-Dichlorobenzene-d4	152.00	3.803	3.805	(1.000)	199114	40	
* 32 Naphthalene-d8	136.00	4.964	4.979	(1.000)	736441	40	
* 48 Acenaphthene-d10	164.00	6.706	6.721	(1.000)	321401	40	

Compounds	QUANT SIG				CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						( ng)	( ug/L)
=====	=====	==	=====	=====	=====	=====	=====
• 65 Phenanthrene-d10	188.00	8.176	8.202	(1.000)	352944	40	
• 76 Chrysene-d12	240.00	10.866	10.916	(1.000)	222549	40	
• 83 Perylene-d12	264.00	12.691	12.788	(1.000)	128599	40	
17 ortho-Cresol	108.00	4.064	4.054	(1.069)	1093871	150	74
20 meta,para-Cresol	108.00	4.194	4.185	(1.103)	1101739	150	77
96 Benzidine	184.00	9.538	9.577	(0.878)	525753	160	80

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.



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INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic4.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: 950531 STD160

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	199114	74.24
32 Naphthalene-d8	440783	220392	881566	736441	67.08
48 Acenaphthene-d10	201424	100712	402848	321401	59.56
65 Phenanthrene-d10	261616	130808	523232	352944	34.91
76 Chrysene-d12	195160	97580	390320	222549	14.03
83 Perylene-d12	123342	61671	246684	128599	4.26

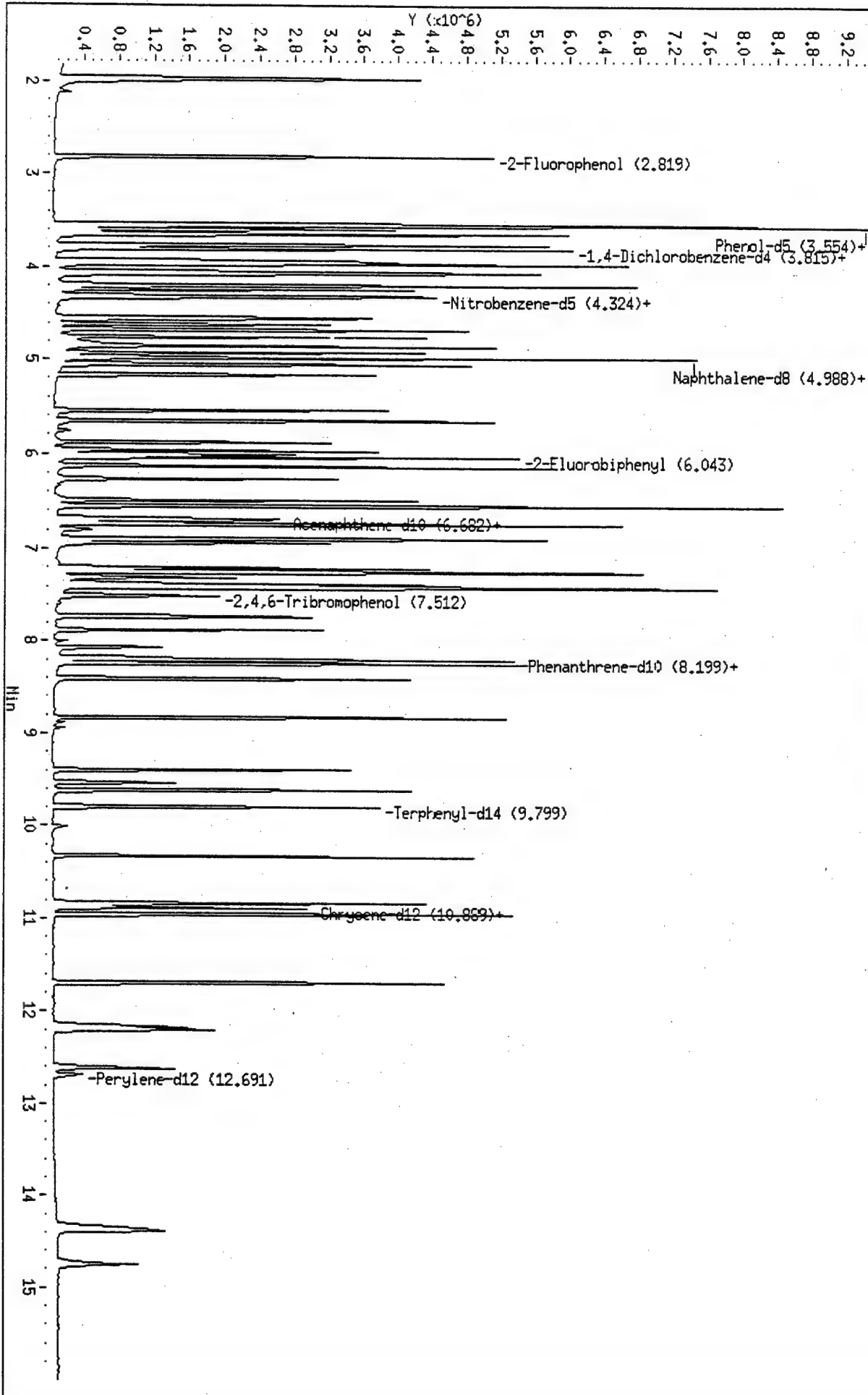
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.07
32 Naphthalene-d8	4.98	4.48	5.48	4.96	-0.29
48 Acenaphthene-d10	6.72	6.22	7.22	6.71	-0.22
65 Phenanthrene-d10	8.20	7.70	8.70	8.18	-0.32
76 Chrysene-d12	10.92	10.42	11.42	10.87	-0.46
83 Perylene-d12	12.79	12.29	13.29	12.69	-0.76

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area..  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c4.d  
Date: 31-MAY-95 14:26  
Client ID:  
Sample Info: STD-8270M/LX  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950531.b/h1511c4.d



SPL Houston Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h151ic6.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 31-MAY-1995 15:09  
Init. Calibration Date(s): 05/31/95 05/31/95  
Init. Calibration Times: 13:39 14:03  
Method File: /chem/h.i/h950531.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
2 Pyridine	2.453	2.674	0.010	9.0	40.0
5 Phenol	2.311	2.379	0.800	2.9	25.0
6 Aniline	2.526	2.547	0.010	0.8	40.0
7 bis(2-Chloroethyl)ether	2.047	2.192	0.700	7.1	25.0
9 2-Chlorophenol	1.590	1.581	0.800	0.6	25.0
10 1,3-Dichlorobenzene	1.675	1.611	0.600	3.8	25.0
12 1,4-Dichlorobenzene	1.670	1.557	0.500	6.7	25.0
13 Benzyl alcohol	1.004	1.063	0.010	5.9	40.0
15 1,2-Dichlorobenzene	1.540	1.496	0.400	2.9	25.0
16 2-Methylphenol	1.419	1.479	0.700	4.2	25.0
18 bis(2-chloroisopropyl)ether	3.211	3.303	0.010	2.9	40.0
19 4-Methylphenol	1.408	1.439	0.600	2.2	25.0
21 N-Nitroso-di-n-propylamine	1.320	1.428	0.500	8.2	25.0
22 Hexachloroethane	0.795	0.825	0.300	3.8	25.0
24 Nitrobenzene	0.515	0.514	0.200	0.2	25.0
25 Isophorone	0.950	0.982	0.400	3.3	25.0
26 2-Nitrophenol	0.185	0.175	0.100	5.4	25.0
27 2,4-Dimethylphenol	0.410	0.420	0.200	2.4	25.0
28 Benzoic acid	0.097	0.082	0.010	15.1	40.0
29 bis(2-Chloroethoxy)methane	0.541	0.555	0.300	2.6	25.0
30 2,4-Dichlorophenol	0.260	0.259	0.200	0.5	25.0
31 1,2,4-Trichlorobenzene	0.267	0.260	0.200	2.6	25.0
33 Naphthalene	1.092	1.061	0.700	2.9	25.0
34 4-Chloroaniline	0.424	0.427	0.010	0.6	40.0
35 Hexachlorobutadiene	0.131	0.129	0.010	2.0	40.0
36 4-Chloro-3-methylphenol	0.320	0.345	0.200	8.0	25.0
37 2-Methylnaphthalene	0.637	0.634	0.400	0.4	25.0
38 Hexachlorocyclopentadiene	0.283	0.240	0.010	15.3	40.0
39 2,4,6-Trichlorophenol	0.310	0.292	0.200	5.9	25.0
40 2,4,5-Trichlorophenol	0.371	0.355	0.200	4.2	25.0
42 2-Chloronaphthalene	1.223	1.175	0.800	4.0	25.0
43 2-Nitroaniline	0.576	0.577	0.010	0.3	40.0
44 Dimethylphthalate	1.397	1.451	0.010	3.9	40.0
45 2,6-Dinitrotoluene	0.315	0.317	0.200	0.5	25.0
46 Acenaphthylene	2.059	1.983	1.300	3.7	25.0
47 3-Nitroaniline	0.392	0.393	0.010	0.3	40.0
49 Acenaphthene	1.223	1.183	0.800	3.3	25.0
50 2,4-Dinitrophenol	0.034	0.025	0.010	26.0	40.0
51 4-Nitrophenol	0.194	0.182	0.010	6.1	40.0
52 Dibenzofuran	1.630	1.597	0.800	2.0	25.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
 Lab File ID: h151ic6.d  
 Analysis Type: WATER  
 Lab Sample ID:  
 Quant Type: ISTD

Injection Date: 31-MAY-1995 15:09  
 Init. Calibration Date(s): 05/31/95 05/31/95  
 Init. Calibration Times: 13:39 14:03  
 Method File: /chem/h.i/h950531.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
53 2,4-Dinitrotoluene	0.372	0.379	0.200	1.9	25.0
54 Diethylphthalate	1.520	1.564	0.010	2.9	40.0
55 4-Chlorophenyl-phenylether	0.521	0.491	0.400	5.7	25.0
56 Fluorene	1.294	1.285	0.900	0.6	25.0
57 4-Nitroaniline	0.362	0.389	0.010	7.6	40.0
58 4,6-Dinitro-2-methylphenol	0.069	0.065	0.010	6.8	100.0
59 n-Nitrosodiphenylamine	0.615	0.564	0.010	8.2	40.0
60 1,2-Diphenylhydrazine	3.675	3.534	0.010	3.8	40.0
62 4-Bromophenyl-phenylether	0.230	0.209	0.100	9.4	25.0
63 Hexachlorobenzene	0.251	0.229	0.100	8.8	25.0
64 Pentachlorophenol	0.076	0.080	0.050	4.6	25.0
66 Phenanthrene	1.336	1.253	0.700	6.2	25.0
67 Anthracene	1.367	1.294	0.700	5.4	25.0
68 Carbazole	1.215	1.156	0.010	4.8	40.0
69 Di-n-butylphthalate	2.183	2.060	0.010	5.6	40.0
70 Fluoranthene	1.152	1.117	0.600	3.0	25.0
71 Pyrene	1.658	1.533	0.600	7.5	25.0
73 Butylbenzylphthalate	1.304	1.247	0.010	4.4	40.0
74 3,3'-Dichlorobenzidine	0.474	0.438	0.010	7.6	40.0
75 Benzo[a]anthracene	1.269	1.216	0.800	4.1	25.0
77 Chrysene	1.133	1.058	0.700	6.6	25.0
78 bis(2-Ethylhexyl)phthalate	1.726	1.651	0.010	4.4	40.0
79 Di-n-octylphthalate	4.490	4.268	0.010	4.9	100.0
80 Benzo[b]fluoranthene	1.794	1.800	0.700	0.3	25.0
81 Benzo[k]fluoranthene	1.799	1.750	0.700	2.7	25.0
82 Benzo[a]pyrene	1.455	1.385	0.700	4.8	25.0
84 Indeno[1,2,3-cd]pyrene	1.476	1.415	0.500	4.2	25.0
85 Dibenz[a,h]anthracene	1.243	1.177	0.400	5.3	25.0
86 Benzo[g,h,i]perylene	1.208	1.183	0.500	2.1	25.0
\$ 3 2-Fluorophenol	1.733	1.621	0.600	6.5	25.0
\$ 4 Phenol-d5	2.070	2.081	0.800	0.5	25.0
\$ 61 2,4,6-Tribromophenol	0.113	0.100	0.010	11.7	40.0
\$ 23 Nitrobenzene-d5	0.500	0.480	0.200	4.0	25.0
\$ 41 2-Fluorobiphenyl	1.292	1.233	0.700	4.6	25.0
\$ 72 Terphenyl-d14	1.084	1.005	0.500	7.3	25.0
17 ortho-Cresol	1.419	1.479	0.700	4.2	25.0
20 meta,para-Cresol	1.408	1.439	0.600	2.2	25.0
96 Benzidine	0.601	0.590	0.010	1.8	40.0

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Data file : /chem/h.i/h950531.b/h151ic6.d

Lab Smp Id:

Inj Date : 31-MAY-1995 15:09

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD050

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	1.980	1.980	(0.520)	381957	50	25
5 Phenol	94.00	3.545	3.545	(0.931)	339871	50	25
6 Aniline	93.00	3.545	3.545	(0.931)	363825	50	25
7 bis(2-Chloroethyl)ether	93.00	3.592	3.592	(0.944)	313152	50	25
9 2-Chlorophenol	128.00	3.651	3.651	(0.960)	225798	50	25
10 1,3-Dichlorobenzene	146.00	3.770	3.770	(0.991)	230091	50	25
12 1,4-Dichlorobenzene	146.00	3.817	3.817	(1.003)	222401	50	25
13 Benzyl alcohol	108.00	3.936	3.936	(1.034)	151878	50	25
15 1,2-Dichlorobenzene	146.00	3.983	3.983	(1.047)	213746	50	25
16 2-Methylphenol	108.00	4.054	4.054	(1.065)	211218	50	25
18 bis(2-chloroisopropyl)ether	45.00	4.078	4.078	(1.072)	471874	50	25
19 4-Methylphenol	108.00	4.185	4.185	(1.100)	205508	50	25
21 N-Nitroso-di-n-propylamine	70.00	4.196	4.196	(1.103)	204007	50	25
22 Hexachloroethane	117.00	4.256	4.256	(1.118)	117904	50	25
24 Nitrobenzene	77.00	4.327	4.327	(0.869)	283127	50	25
25 Isophorone	82.00	4.552	4.552	(0.914)	540834	50	25
26 2-Nitrophenol	139.00	4.623	4.623	(0.929)	96524	50	25
27 2,4-Dimethylphenol	107.00	4.682	4.682	(0.940)	231433	50	25
28 Benzoic acid	122.00	4.801	4.801	(0.964)	45166	50	25
29 bis(2-Chloroethoxy)methane	93.00	4.765	4.765	(0.957)	305804	50	25
30 2,4-Dichlorophenol	162.00	4.860	4.860	(0.976)	142725	50	25
31 1,2,4-Trichlorobenzene	180.00	4.943	4.943	(0.993)	143025	50	25
33 Naphthalene	128.00	4.990	4.990	(1.002)	584560	50	25
34 4-Chloroaniline	127.00	5.062	5.062	(1.017)	235323	50	25
35 Hexachlorobutadiene	225.00	5.180	5.180	(1.040)	70919	50	25
36 4-Chloro-3-methylphenol	107.00	5.559	5.559	(1.117)	190207	50	25
37 2-Methylnaphthalene	142.00	5.666	5.666	(1.138)	349367	50	25
38 Hexachlorocyclopentadiene	237.00	5.903	5.903	(0.878)	60387	50	25
39 2,4,6-Trichlorophenol	196.00	5.986	5.986	(0.891)	73501	50	25

Compounds	QUANT SIG		RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
	MASS						CN-COLUMN	FINAL
-----	----		==	-----	-----	-----	( ng)	( ug/L)
40 2,4,5-Trichlorophenol	196.00		6.021	6.021	(0.896)	89453	50	25
42 2-Chloronaphthalene	162.00		6.152	6.152	(0.915)	295802	50	25
43 2-Nitroaniline	65.00		6.282	6.282	(0.935)	145379	50	25
44 Dimethylphthalate	163.00		6.507	6.507	(0.968)	365363	50	25
45 2,6-Dinitrotoluene	165.00		6.567	6.567	(0.977)	79786	50	25
46 Acenaphthylene	152.00		6.567	6.567	(0.977)	499162	50	25
47 3-Nitroaniline	138.00		6.697	6.697	(0.996)	98902	50	25
49 Acenaphthene	153.00		6.756	6.756	(1.005)	297851	50	25
50 2,4-Dinitrophenol	184.00		6.815	6.815	(1.014)	6383	50	25 (M)
51 4-Nitrophenol	109.00		6.910	6.910	(1.028)	45806	50	25
52 Dibenzofuran	168.00		6.922	6.922	(1.030)	402130	50	25
53 2,4-Dinitrotoluene	165.00		6.958	6.958	(1.035)	95419	50	25
54 Diethylphthalate	149.00		7.218	7.218	(1.074)	393874	50	25
55 4-Chlorophenyl-phenylether	204.00		7.278	7.278	(1.083)	123652	50	25
56 Fluorene	166.00		7.266	7.266	(1.081)	323624	50	25
57 4-Nitroaniline	138.00		7.325	7.325	(1.090)	98042	50	25
58 4,6-Dinitro-2-methylphenol	198.00		7.384	7.384	(0.900)	21106	50	25 (M)
59 n-Nitrosodiphenylamine	169.00		7.396	7.396	(0.902)	184449	50	25
60 1,2-Diphenylhydrazine	77.00		7.432	7.432	(0.906)	1155693	50	25
62 4-Bromophenyl-phenylether	248.00		7.763	7.763	(0.947)	68283	50	25
63 Hexachlorobenzene	283.70		7.906	7.906	(0.964)	74795	50	25
64 Pentachlorophenol	265.50		8.095	8.095	(0.987)	26129	50	25 (M)
66 Phenanthrene	178.00		8.226	8.226	(1.003)	409912	50	25
67 Anthracene	178.00		8.273	8.273	(1.009)	423089	50	25
68 Carbazole	167.00		8.451	8.451	(1.030)	378067	50	25
69 Di-n-butylphthalate	149.00		8.877	8.877	(1.082)	673666	50	25
70 Fluoranthene	202.00		9.434	9.434	(1.150)	365338	50	25
71 Pyrene	202.00		9.659	9.659	(0.885)	374033	50	25
73 Butylbenzylphthalate	149.00		10.382	10.382	(0.951)	304084	50	25
74 3,3'-Dichlorobenzidine	252.00		10.892	10.892	(0.998)	106972	50	25
75 Benzo[a]anthracene	228.00		10.904	10.904	(0.999)	296729	50	25
77 Chrysene	228.00		10.951	10.951	(1.003)	258173	50	25
78 bis(2-Ethylhexyl)phthalate	149.00		11.034	11.034	(1.011)	402654	50	25
79 Di-n-octylphthalate	149.00		11.781	11.781	(0.921)	658002	50	25
80 Benzo[b]fluoranthene	252.00		12.243	12.243	(0.957)	277456	50	25
81 Benzo[k]fluoranthene	252.00		12.278	12.278	(0.960)	269838	50	25
82 Benzo[a]pyrene	252.00		12.705	12.705	(0.994)	213543	50	25
84 Indeno[1,2,3-cd]pyrene	276.00		14.447	14.447	(1.130)	218143	50	25
85 Dibenz[a,h]anthracene	278.00		14.483	14.483	(1.133)	181511	50	25
86 Benzo[g,h,i]perylene	276.00		14.862	14.862	(1.162)	182378	50	25
\$ 3 2-Fluorophenol	112.00		2.822	2.822	(0.742)	231511	50	25
\$ 4 Phenol-d5	99.00		3.533	3.533	(0.928)	297261	50	25
\$ 61 2,4,6-Tribromophenol	329.70		7.538	7.538	(0.919)	32558	50	25
\$ 23 Nitrobenzene-d5	82.00		4.315	4.315	(0.867)	264640	50	25
\$ 41 2-Fluorobiphenyl	172.00		6.057	6.057	(0.901)	310387	50	25
\$ 72 Terphenyl-d14	244.00		9.849	9.849	(0.902)	245238	50	25
* 11 1,4-Dichlorobenzene-d4	152.00		3.805	3.805	(1.000)	114276	40	
* 32 Naphthalene-d8	136.00		4.979	4.979	(1.000)	440783	40	
* 48 Acenaphthene-d10	164.00		6.721	6.721	(1.000)	201424	40	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
65 Phenanthrene-d10	188.00	8.202	8.202	(1.000)	261616	40	
76 Chrysene-d12	240.00	10.916	10.916	(1.000)	195160	40	
83 Perylene-d12	264.00	12.788	12.788	(1.000)	123342	40	
17 ortho-Cresol	108.00	4.054	4.054	(1.065)	211218	50	25
20 meta,para-Cresol	108.00	4.185	4.185	(1.100)	205508	50	25
96 Benzidine	184.00	9.577	9.577	(0.877)	144034	50	25

QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic6.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531 b/hclpw.m  
Misc Info: 950531 STD050

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	114276	0.00
32 Naphthalene-d8	440783	220392	881566	440783	0.00
48 Acenaphthene-d10	201424	100712	402848	201424	0.00
65 Phenanthrene-d10	261616	130808	523232	261616	0.00
76 Chrysene-d12	195160	97580	390320	195160	0.00
83 Perylene-d12	123342	61671	246684	123342	0.00

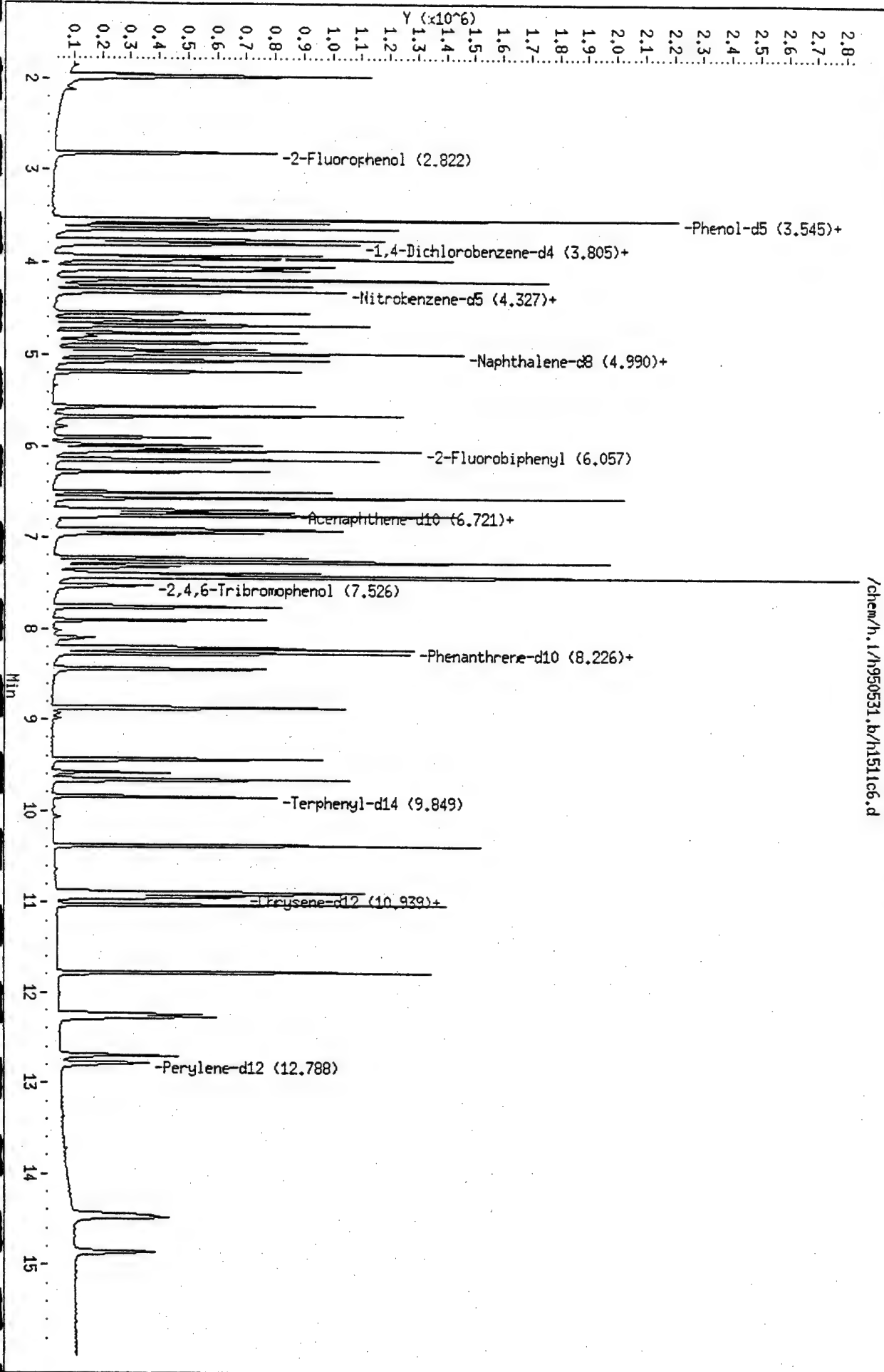
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.81	0.00
32 Naphthalene-d8	4.98	4.48	5.48	4.98	0.00
48 Acenaphthene-d10	6.72	6.22	7.22	6.72	0.00
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	0.00
76 Chrysene-d12	10.92	10.42	11.42	10.92	0.00
83 Perylene-d12	12.79	12.29	13.29	12.79	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/h.1/h950531.b/h1511c6.d  
Date : 31-MAY-95 15:09  
Client ID:  
Sample Info: STD-BE270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h152cc1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 01-JUN-1995 09:55  
Init. Calibration Date(s): 05/31/95 05/31/95  
Init. Calibration Times: 13:39 14:03  
Method File: /chem/h.i/h950601.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	MAX %D	MAX %D
2 Pyridine	2.453	2.339	0.010	4.6	40.0
5 Phenol	2.311	2.456	0.800	6.3	25.0
6 Aniline	2.526	2.554	0.010	1.1	40.0
7 bis(2-Chloroethyl)ether	2.047	1.923	0.700	6.1	25.0
9 2-Chlorophenol	1.590	1.401	0.800	11.9	25.0
10 1,3-Dichlorobenzene	1.675	1.604	0.600	4.3	25.0
12 1,4-Dichlorobenzene	1.670	1.557	0.500	6.7	25.0
13 Benzyl alcohol	1.004	0.944	0.010	6.0	40.0
15 1,2-Dichlorobenzene	1.540	1.483	0.400	3.7	25.0
16 2-Methylphenol	1.419	1.383	0.700	2.6	25.0
18 bis(2-chloroisopropyl)ether	3.211	3.114	0.010	3.0	40.0
19 4-Methylphenol	1.408	1.465	0.600	4.0	25.0
21 N-Nitroso-di-n-propylamine	1.320	1.243	0.500	5.9	25.0
22 Hexachloroethane	0.795	0.721	0.300	9.4	25.0
24 Nitrobenzene	0.515	0.526	0.200	2.2	25.0
25 Isophorone	0.950	0.887	0.400	6.7	25.0
26 2-Nitrophenol	0.185	0.204	0.100	10.0	25.0
27 2,4-Dimethylphenol	0.410	0.400	0.200	2.4	25.0
28 Benzoic acid	0.097	0.087	0.010	10.1	40.0
29 bis(2-Chloroethoxy)methane	0.541	0.567	0.300	4.9	25.0
30 2,4-Dichlorophenol	0.260	0.232	0.200	10.9	25.0
31 1,2,4-Trichlorobenzene	0.267	0.261	0.200	2.2	25.0
33 Naphthalene	1.092	1.056	0.700	3.3	25.0
34 4-Chloroaniline	0.424	0.386	0.010	9.0	40.0
35 Hexachlorobutadiene	0.131	0.124	0.010	5.3	40.0
36 4-Chloro-3-methylphenol	0.320	0.291	0.200	9.0	25.0
37 2-Methylnaphthalene	0.637	0.640	0.400	0.5	25.0
38 Hexachlorocyclopentadiene	0.283	0.259	0.010	8.7	40.0
39 2,4,6-Trichlorophenol	0.310	0.288	0.200	7.1	25.0
40 2,4,5-Trichlorophenol	0.371	0.347	0.200	6.4	25.0
42 2-Chloronaphthalene	1.223	1.169	0.800	4.5	25.0
43 2-Nitroaniline	0.576	0.549	0.010	4.6	40.0
44 Dimethylphthalate	1.397	1.227	0.010	12.1	40.0
45 2,6-Dinitrotoluene	0.315	0.305	0.200	3.4	25.0
46 Acenaphthylene	2.059	1.967	1.300	4.5	25.0
47 3-Nitroaniline	0.392	0.341	0.010	13.0	40.0
49 Acenaphthene	1.223	1.239	0.800	1.3	25.0
50 2,4-Dinitrophenol	0.034	0.045	0.010	31.1	40.0
51 4-Nitrophenol	0.194	0.130	0.010	32.8	40.0
52 Dibenzofuran	1.630	1.440	0.800	11.7	25.0

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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h152cc1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 01-JUN-1995 09:55  
Init. Calibration Date(s): 05/31/95 05/31/95  
Init. Calibration Times: 13:39 14:03  
Method File: /chem/h.i/h950601.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
53 2,4-Dinitrotoluene	0.372	0.348	0.200	6.5	25.0
54 Diethylphthalate	1.520	1.331	0.010	12.4	40.0
55 4-Chlorophenyl-phenylether	0.521	0.535	0.400	2.8	25.0
56 Fluorene	1.294	1.283	0.900	0.8	25.0
57 4-Nitroaniline	0.362	0.272	0.010	25.0	40.0
58 4,6-Dinitro-2-methylphenol	0.069	0.102	0.010	47.1	100.0
59 n-Nitrosodiphenylamine	0.615	0.619	0.010	0.7	40.0
60 1,2-Diphenylhydrazine	3.675	3.836	0.010	4.4	40.0
62 4-Bromophenyl-phenylether	0.230	0.220	0.100	4.4	25.0
63 Hexachlorobenzene	0.251	0.234	0.100	6.6	25.0
64 Pentachlorophenol	0.076	0.081	0.050	6.4	25.0
66 Phenanthrene	1.336	1.230	0.700	7.9	25.0
67 Anthracene	1.367	1.458	0.700	6.6	25.0
68 Carbazole	1.215	0.984	0.010	19.0	40.0
69 Di-n-butylphthalate	2.183	2.201	0.010	0.8	40.0
70 Fluoranthene	1.152	0.986	0.600	14.4	25.0
71 Pyrene	1.658	1.773	0.600	7.0	25.0
73 Butylbenzylphthalate	1.304	1.302	0.010	0.2	40.0
74 3,3'-Dichlorobenzidine	0.474	0.323	0.010	31.9	40.0
75 Benzo[a]anthracene	1.269	1.110	0.800	12.5	25.0
77 Chrysene	1.133	1.220	0.700	7.6	25.0
78 bis(2-Ethylhexyl)phthalate	1.726	2.189	0.010	26.8	40.0
79 Di-n-octylphthalate	4.490	6.899	0.010	53.7	100.0
80 Benzo[b]fluoranthene	1.794	1.378	0.700	23.2	25.0
81 Benzo[k]fluoranthene	1.799	2.346	0.700	30.4	25.0
82 Benzo[a]pyrene	1.455	1.398	0.700	3.9	25.0
84 Indeno[1,2,3-cd]pyrene	1.476	1.294	0.500	12.4	25.0
85 Dibenz[a,h]anthracene	1.243	1.020	0.400	18.0	25.0
86 Benzo[g,h,i]perylene	1.208	0.945	0.500	21.7	25.0
\$ 3 2-Fluorophenol	1.733	1.496	0.600	13.6	25.0
\$ 4 Phenol-d5	2.070	2.010	0.800	2.9	25.0
\$ 61 2,4,6-Tribromophenol	0.113	0.098	0.010	13.1	40.0
\$ 23 Nitrobenzene-d5	0.500	0.508	0.200	1.4	25.0
\$ 41 2-Fluorobiphenyl	1.292	1.258	0.700	2.6	25.0
\$ 72 Terphenyl-d14	1.084	1.141	0.500	5.2	25.0
17 ortho-Cresol	1.419	1.383	0.700	2.6	25.0
20 meta,para-Cresol	1.408	1.465	0.600	4.0	25.0
96 Benzidine	0.601	0.387	0.010	35.6	40.0

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Data file : /chem/h.i/h950601.b/h152cc1.d

Lab Smp Id:

Inj Date : 01-JUN-1995 09:55

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950601 STD050

Comment :

Method : /chem/h.i/h950601.b/hclpw.m

Meth Date : 01-Jun-1995 13:56 liping

Quant Type: ISTD

Cal Date : 01-JUN-1995 09:55

Cal File: h152cc1.d

Als bottle: 2

Continuing Calibration Sample

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
2 Pyridine	79.00	1.977	1.977	(0.522)	588809	50	48
5 Phenol	94.00	3.542	3.542	(0.934)	618212	50	53
6 Aniline	93.00	3.542	3.542	(0.934)	642904	50	50
7 bis(2-Chloroethyl)ether	93.00	3.577	3.577	(0.944)	483903	50	47
9 2-Chlorophenol	128.00	3.648	3.648	(0.962)	352523	50	44
10 1,3-Dichlorobenzene	146.00	3.755	3.755	(0.991)	403704	50	48
12 1,4-Dichlorobenzene	146.00	3.803	3.803	(1.003)	391936	50	47
13 Benzyl alcohol	108.00	3.933	3.933	(1.038)	237551	50	47
15 1,2-Dichlorobenzene	146.00	3.957	3.957	(1.044)	373354	50	48
16 2-Methylphenol	108.00	4.051	4.051	(1.069)	348033	50	49
18 bis(2-chloroisopropyl)ether	45.00	4.051	4.051	(1.069)	783924	50	48
19 4-Methylphenol	108.00	4.182	4.182	(1.103)	368675	50	52
21 N-Nitroso-di-n-propylamine	70.00	4.182	4.182	(1.103)	312782	50	47
22 Hexachloroethane	117.00	4.229	4.229	(1.116)	181382	50	45
24 Nitrobenzene	77.00	4.312	4.312	(0.871)	478166	50	51
25 Isophorone	82.00	4.526	4.526	(0.914)	805673	50	47
26 2-Nitrophenol	139.00	4.608	4.608	(0.931)	185149	50	55
27 2,4-Dimethylphenol	107.00	4.668	4.668	(0.943)	363786	50	49
28 Benzoic acid	122.00	4.810	4.810	(0.971)	78873	50	45 (aM)
29 bis(2-Chloroethoxy)methane	93.00	4.739	4.739	(0.957)	515692	50	52
30 2,4-Dichlorophenol	162.00	4.846	4.846	(0.978)	210779	50	44
31 1,2,4-Trichlorobenzene	180.00	4.917	4.917	(0.993)	236755	50	49
33 Naphthalene	128.00	4.964	4.964	(1.002)	959483	50	48
34 4-Chloroaniline	127.00	5.047	5.047	(1.019)	351081	50	46
35 Hexachlorobutadiene	225.00	5.154	5.154	(1.041)	113010	50	47
36 4-Chloro-3-methylphenol	107.00	5.545	5.545	(1.120)	264382	50	46
37 2-Methylnaphthalene	142.00	5.640	5.640	(1.139)	581644	50	50
38 Hexachlorocyclopentadiene	237.00	5.865	5.865	(0.878)	97180	50	46
39 2,4,6-Trichlorophenol	196.00	5.960	5.960	(0.892)	108374	50	46

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
40 2,4,5-Trichlorophenol	196.00	6.007	6.007	(0.899)	130365	50	47
42 2-Chloronaphthalene	162.00	6.114	6.114	(0.915)	439326	50	48
43 2-Nitroaniline	65.00	6.256	6.256	(0.936)	206393	50	48 (a)
44 Dimethylphthalate	163.00	6.469	6.469	(0.968)	461282	50	44
45 2,6-Dinitrotoluene	165.00	6.529	6.529	(0.977)	114543	50	48
46 Acenaphthylene	152.00	6.529	6.529	(0.977)	739447	50	48
47 3-Nitroaniline	138.00	6.683	6.683	(1.000)	128065	50	43 (a)
49 Acenaphthene	153.00	6.718	6.718	(1.005)	465600	50	51
50 2,4-Dinitrophenol	184.00	6.789	6.789	(1.016)	16889	50	66
51 4-Nitrophenol	109.00	6.920	6.920	(1.035)	48934	50	34 (aM)
52 Dibenzofuran	168.00	6.884	6.884	(1.030)	541164	50	44
53 2,4-Dinitrotoluene	165.00	6.920	6.920	(1.035)	130705	50	47
54 Diethylphthalate	149.00	7.180	7.180	(1.074)	500450	50	44
55 4-Chlorophenyl-phenylether	204.00	7.228	7.228	(1.082)	201277	50	51
56 Fluorene	166.00	7.228	7.228	(1.082)	482312	50	50
57 4-Nitroaniline	138.00	7.299	7.299	(1.092)	102081	50	38 (a)
58 4,6-Dinitro-2-methylphenol	198.00	7.335	7.335	(0.900)	40688	50	74
59 n-Nitrosodiphenylamine	169.00	7.358	7.358	(0.903)	247297	50	50
60 1,2-Diphenylhydrazine	77.00	7.382	7.382	(0.905)	1532682	50	52
62 4-Bromophenyl-phenylether	248.00	7.714	7.714	(0.946)	87991	50	48
63 Hexachlorobenzene	283.70	7.856	7.856	(0.964)	93519	50	47
64 Pentachlorophenol	265.50	8.046	8.046	(0.987)	32475	50	53 (M)
66 Phenanthrene	178.00	8.176	8.176	(1.003)	491641	50	46 (M)
67 Anthracene	178.00	8.223	8.223	(1.009)	582578	50	53
68 Carbazole	167.00	8.413	8.413	(1.032)	393177	50	40
69 Di-n-butylphthalate	149.00	8.816	8.816	(1.081)	879569	50	50
70 Fluoranthene	202.00	9.385	9.385	(1.151)	393974	50	43
71 Pyrene	202.00	9.598	9.598	(0.885)	388322	50	53
73 Butylbenzylphthalate	149.00	10.309	10.309	(0.951)	285044	50	50
74 3,3'-Dichlorobenzidine	252.00	10.843	10.843	(1.000)	70776	50	34
75 Benzo[a]anthracene	228.00	10.831	10.831	(0.999)	242961	50	44
77 Chrysene	228.00	10.878	10.878	(1.003)	267057	50	54
78 bis(2-Ethylhexyl)phthalate	149.00	10.950	10.950	(1.010)	479299	50	63
79 Di-n-octylphthalate	149.00	11.672	11.672	(0.921)	653139	50	77
80 Benzo[b]fluoranthene	252.00	12.147	12.147	(0.958)	130476	50	38
81 Benzo[k]fluoranthene	252.00	12.182	12.182	(0.961)	222080	50	65 (M)
82 Benzo[a]pyrene	252.00	12.597	12.597	(0.993)	132390	50	48
84 Indeno[1,2,3-cd]pyrene	276.00	14.327	14.327	(1.130)	122502	50	44
85 Dibenzo[a,h]anthracene	278.00	14.363	14.363	(1.133)	96539	50	41
86 Benzo[g,h,i]perylene	276.00	14.730	14.730	(1.162)	89482	50	39 (M)
\$ 3 2-Fluorophenol	112.00	2.819	2.819	(0.744)	376617	50	43
\$ 4 Phenol-d5	99.00	3.530	3.530	(0.931)	505907	50	48
\$ 61 2,4,6-Tribromophenol	329.70	7.489	7.489	(0.919)	39142	50	43
\$ 23 Nitrobenzene-d5	82.00	4.288	4.288	(0.866)	461216	50	51
\$ 41 2-Fluorobiphenyl	172.00	6.019	6.019	(0.901)	473083	50	49
\$ 72 Terphenyl-d14	244.00	9.788	9.788	(0.903)	249776	50	52
* 11 1,4-Dichlorobenzene-d4	152.00	3.791	3.791	(1.000)	201362	40	
* 32 Naphthalene-d8	136.00	4.952	4.952	(1.000)	726976	40	
* 48 Acenaphthene-d10	164.00	6.683	6.683	(1.000)	300745	40	

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.152	8.152	(1.000)	319648	40	
* 76 Chrysene-d12	240.00	10.843	10.843	(1.000)	175171	40	
* 83 Perylene-d12	264.00	12.680	12.680	(1.000)	75734	40	
17 ortho-Cresol	108.00	4.051	4.051	(1.069)	348033	50	49
20 meta,para-Cresol	108.00	4.182	4.182	(1.103)	368675	50	52
96 Benzidine	184.00	9.551	9.551	(0.881)	84806	50	32

#### QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h152cc1.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950601.b/hclpw.m  
Misc Info: 950601 STD050

Calibration Date: 06/01/95  
Calibration Time: 0955

Level: LOW  
Sample Type: WATER

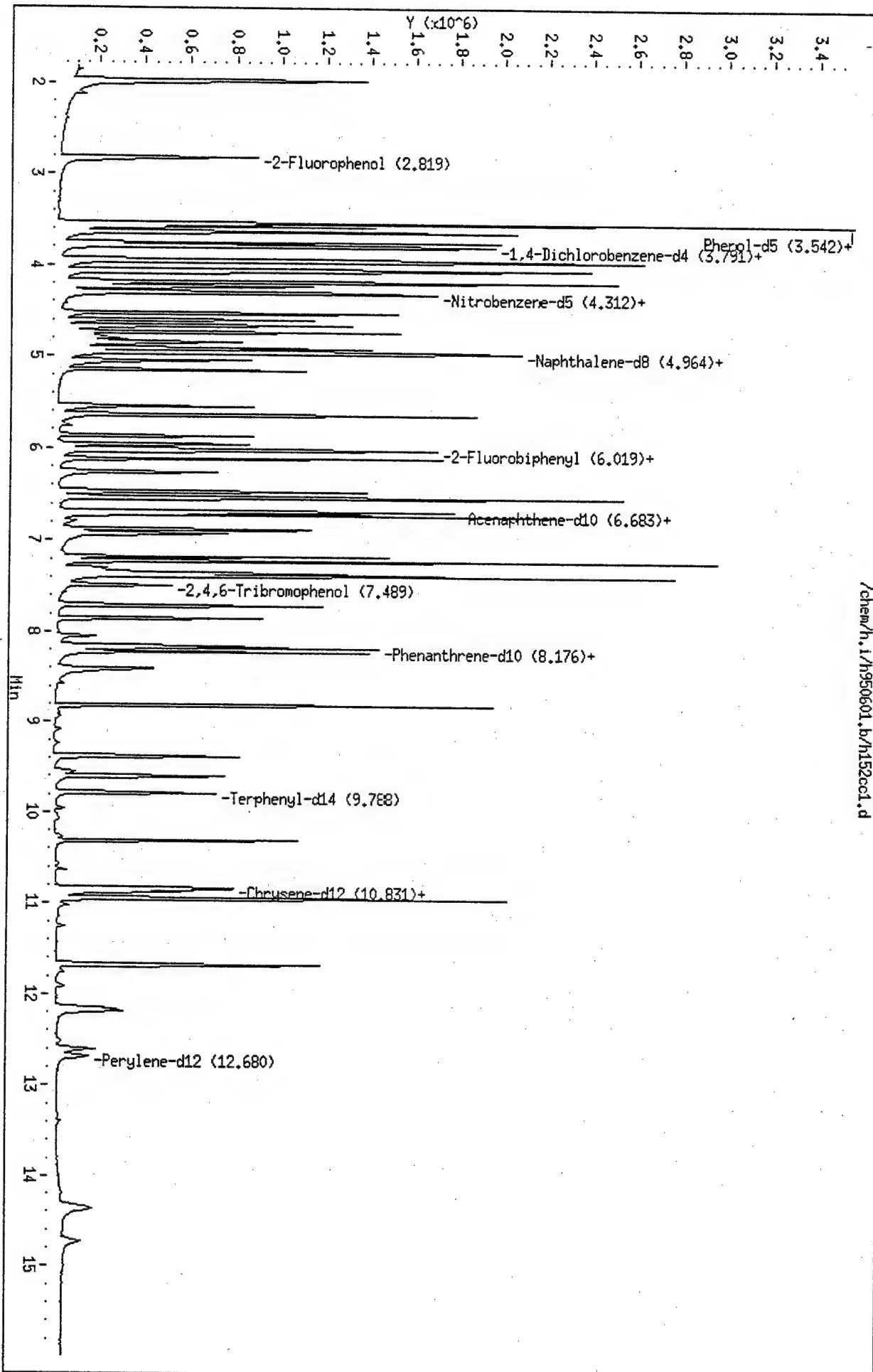
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	201362	100681	402724	201362	0.00
32 Naphthalene-d8	726976	363488	1453952	726976	0.00
48 Acenaphthene-d10	300745	150372	601490	300745	0.00
65 Phenanthrene-d10	319648	159824	639296	319648	0.00
76 Chrysene-d12	175171	87586	350342	175171	0.00
83 Perylene-d12	75734	37867	151468	75734	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.79	3.29	4.29	3.79	0.00
32 Naphthalene-d8	4.95	4.45	5.45	4.95	0.00
48 Acenaphthene-d10	6.68	6.18	7.18	6.68	0.00
65 Phenanthrene-d10	8.15	7.65	8.65	8.15	0.00
76 Chrysene-d12	10.84	10.34	11.34	10.84	0.00
83 Perylene-d12	12.68	12.18	13.18	12.68	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.i/h950601.b/h152cc1.d  
Date : 01-JUN-1995 09:55  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25







\*\*\*SPL BATCH QUALITY CONTROL REPORT\*\*  
METHOD 601 \*

PAGE HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_F950525135200

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result	Recovery	
			<1>	%	
Dichlorodifluoromethane	ND	20	12	60.0	1 - 200
Chloromethane	ND	20	15	75.0	1 - 193
Vinyl chloride	ND	20	15	75.0	28 - 163
Bromomethane	ND	20	15	75.0	1 - 144
Chloroethane	ND	20	17	85.0	46 - 137
Trichlorofluoromethane	ND	20	17	85.0	21 - 156
1,1-Dichloroethene	ND	20	14	70.0	28 - 167
Methylene chloride	ND	20	25	125	25 - 162
Trans-1,2-Dichloroethene	ND	20	20	100	38 - 155
1,1-Dichloroethane	ND	20	22	110	34 - 132
Chloroform	ND	20	24	120	49 - 133
1,1,1-Trichloroethane	ND	20	22	110	41 - 138
Carbon tetrachloride	ND	20	22	110	43 - 143
1,2-Dichloroethane	ND	20	23	115	51 - 147
2-Chloroethylvinyl ether	ND	20	21	105	14 - 186
Trichloroethene	ND	20	24	120	35 - 146
1,2-Dichloropropane	ND	20	23	115	44 - 156
Bromodichloromethane	ND	20	22	110	42 - 172
cis-1,3-Dichloropropene	ND	20	26	130	22 - 178
trans-1,3-Dichloropropene	ND	20	23	115	33 - 178
1,1,2-Trichloroethane	ND	20	26	130	39 - 136
Tetrachloroethene	ND	20	25	125	26 - 162
Dibromochloromethane	ND	20	24	120	24 - 191
Chlorobenzene	ND	20	25	125	38 - 150
Bromoform	ND	20	23	115	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	25	125	8 - 184
1,3-Dichlorobenzene	ND	20	25	125	7 - 187
1,4-Dichlorobenzene	ND	20	25	125	42 - 143
1,2-Dichlorobenzene	ND	20	26	130	1 - 208

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results	Spike Added	Matrix Spike		Matrix Spike		MS/MSD Relative % Difference	QC Limits(***)	
			Result	Recovery	Duplicate			RPD Max.	Recovery Range
					Result	Recovery			
	<2>	<3>	<1>	<4>	<1>	<5>			
Dichlorodifluoromethane	ND	20	20	100	19	95.0	5.13	20	1 - 200

SAMPLES IN BATCH (SPL ID):

9505700-05A 9505776-04A 9505679-01A 9505679-02A  
9505767-03E 9505767-01E 9505714-08A 9505791-04B  
9505791-03B 9505792-01A 9505767-05E 9505767-06E  
9505791-02B 9505791-01B 9505719-01A 9505791-05B  
9505029-24A 9505029-23A

Idelis Williams, QC Officer



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*  
METHOD 601 \*

PAGE 1  
HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_F950525135200

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results	Spike Added	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result	Recovery	Result	Recovery		RPD	Recovery Range
			<1>	<4>	<1>	<5>		Max.	
Chloromethane	ND	20	24	120	21	105	13.3	20	1 - 193
Vinyl chloride	ND	20	22	110	22	110	0	20	28 - 163
Bromomethane	ND	20	23	115	22	110	4.44	20	1 - 144
Chloroethane	ND	20	25	125	25	125	0	20	46 - 137
Trichlorofluoromethane	ND	20	23	115	21	105	9.09	20	21 - 156
1,1-Dichloroethene	ND	20	20	100	19	95.0	5.13	20	28 - 167
Methylene chloride	ND	20	20	100	19	95.0	5.13	20	25 - 162
Trans-1,2-Dichloroethene	ND	20	20	100	19	95.0	5.13	20	38 - 155
1,1-Dichloroethane	ND	20	20	100	19	95.0	5.13	20	47 - 132
Chloroform	ND	20	20	100	19	95.0	5.13	20	49 - 133
1,1,1-Trichloroethane	ND	20	20	100	20	100	0	20	41 - 138
Carbon tetrachloride	ND	20	20	100	20	100	0	20	43 - 143
1,2-Dichloroethane	ND	20	19	95.0	18	90.0	5.41	20	51 - 147
2-Chloroethylvinyl ether	ND	20	18	90.0	18	90.0	0	20	14 - 186
Trichloroethene	ND	20	22	110	21	105	4.65	20	35 - 146
1,2-Dichloropropane	ND	20	19	95.0	19	95.0	0	20	44 - 156
Bromodichloromethane	ND	20	19	95.0	19	95.0	0	20	42 - 172
cis-1,3-Dichloropropene	ND	20	19	95.0	19	95.0	0	20	22 - 178
trans-1,3-Dichloropropene	ND	20	19	95.0	19	95.0	0	20	33 - 178
1,1,2-Trichloroethane	ND	20	20	100	19	95.0	5.13	20	39 - 136
Tetrachloroethene	1	20	22	105	21	100	4.88	20	26 - 162
Dibromochloromethane	ND	20	19	95.0	18	90.0	5.41	20	24 - 191
Chlorobenzene	ND	20	19	95.0	19	95.0	0	20	38 - 150
Bromoform	ND	20	17	85.0	17	85.0	0	20	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	17	85.0	17	85.0	0	20	8 - 184
1,3-Dichlorobenzene	ND	20	18	90.0	18	90.0	0	20	7 - 187
1,4-Dichlorobenzene	ND	20	18	90.0	17	85.0	5.71	20	42 - 143
1,2-Dichlorobenzene	ND	20	18	90.0	18	90.0	0	20	1 - 208

Analyst: JZL

Sequence Date: 05/26/95

SPL ID of sample spiked: 9505719-01A

Sample File ID: FF\_836.TX0

Method Blank File ID:

Blank Spike File ID: FF\_844.TX0

Matrix Spike File ID: FF\_947.TX0

Matrix Spike Duplicate File ID: FF\_948.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery =  $[( <1> - <2> ) / <3> ] \times 100$

LCS % Recovery =  $( <1> / <3> ) \times 100$

Relative Percent Difference =  $| ( <4> - <5> ) | / [ ( <4> + <5> ) \times 0.5 ] \times 100$

(\*\*) = Source: 601, Table 2

(\*\*\*) = Source: SPL Temporary Limits

SAMPLES IN BATCH(SPL ID):

9505700-05A 9505776-04A 9505679-01A 9505679-02A  
9505767-03E 9505767-01E 9505714-08A 9505791-04B  
9505791-03B 9505792-01A 9505767-05E 9505767-06E  
9505791-02B 9505791-01B 9505719-01A 9505791-05B  
9505029-24A 9505029-23A

Idelis Williams, QC Officer



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*

METHOD 8020

PAGE HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_J950525074400

## LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Benzene	ND	50	44	88.0	61 - 123
Toluene	ND	50	44	88.0	62 - 122
EthylBenzene	ND	50	45	90.0	56 - 119
O Xylene	ND	50	47	94.0	32 - 160
M & P Xylene	ND	100	100	100	32 - 160

## MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results	Spike Added	Matrix Spike		Matrix Spike		MS/MSD Relative % Difference	QC Limits (***)	
					Duplicate			(Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
	<2>	<3>							
Benzene	ND	20	22	110	20	100	9.52	25	39 - 150
Toluene	ND	20	20	100	19	95.0	5.13	26	56 - 134
EthylBenzene	ND	20	20	100	18	90.0	10.5	38	61 - 128
O Xylene	ND	20	20	100	18	90.0	10.5	20	40 - 130
M & P Xylene	ND	40	42	105	37	92.5	12.7	20	43 - 152

Analyst: YN

Sequence Date: 05/25/95

SPL ID of sample spiked: 9505840-01A

Sample File ID: J\_\_260.TX0

Method Blank File ID:

Blank Spike File ID: J\_\_257.TX0

Matrix Spike File ID: J\_\_282.TX0

Matrix Spike Duplicate File ID: J\_\_283.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery =  $[( <1> - <2> ) / <3> ] \times 100$ LCS % Recovery =  $( <1> / <3> ) \times 100$ Relative Percent Difference =  $| ( <4> - <5> ) / [ ( <4> + <5> ) \times 0.5 ] \times 100$ 

(\*\*) = Source: SPL-Houston Historical Data

(\*\*\*) = Source: SPL-Houston Historical Data

## SAMPLES IN BATCH(SPL ID):

9505715-02A 9505771-02A 9505714-08C 9505771-01A  
9505775-11A 9505750-07A 9505841-02A 9505907-01A  
9505906-01A 9505903-01A 9505876-02A 9505877-03A  
9505715-04A 9505892-01A 9505892-03A 9505775-10A  
9505775-09A 9505775-08A 9505775-07A 9505840-01A

  
Idelis Williams, QC Officer

## ICP Spectroscopy Method 6010 Quality Control Report



Matrix: Water

Units: mg/L

Analyst: RSC

Date: 053195 Time: 0817 File Name: 053195RC

Checked: *J. Mannoque*  
5/31/95

## Laboratory Control Sample

## Work Orders in Batch

Work Order Fractions

95-05-694 01E, 02E, 03E

95-05-714 05C, 08D

95-05-737 01D

[CAVQC Only]

Element	Mth. Blank	True Value	Result	% Recovery	Lower Limit	Upper Limit
Barium	ND	4.00	3.916	98	3.20	4.80
Cadmium	ND	4.00	3.816	95	3.20	4.80
Copper	ND	2.00	1.957	98	1.60	2.40
Lead	ND	2.00	1.939	97	1.60	2.40
Mercury	ND	2.00	1.955	98	1.60	2.40
Manganese	ND	2.00	1.977	99	1.60	2.40
Nickel	ND	2.00	1.922	96	1.60	2.40

## Matrix Spike - Spike Duplicate Results

## Work Order Spiked: 95-05-737 (01D)

Element	Sample Result	Spike Added	Matrix Spike Result	Matrix Spike Recovery	Matrix Spike Duplicate Result	Matrix Spike Duplicate Recovery	QC Limits % Recovery	Spike RPD %	QC Limits %
Barium	ND	2.0	2.027	101	2.073	103.650	80 120	2.2	20.0
Cadmium	0.3974	2.0	2.301	95	2.322	96	80 120	1.1	20.0
Copper	ND	1.0	0.9789	98	0.9736	97	80 120	0.5	20.0
Lead	ND	1.0	0.9677	97	0.9778	98	80 120	1.0	20.0
Mercury	0.594	1.0	1.56	97	1.57	98	80 120	1.0	20.0
Manganese	ND	1.0	0.97	97	0.9816	98	80 120	1.2	20.0
Nickel	0.038	1.0	0.9934	96	0.9833	95	80 120	1.1	20.0

*L. Williams* 6/1/95  
 Idelis Williams, QC Officer



# SPL QUALITY CONTROL SUMMARY

Rev. 494

Atomic Absorption Analysis

Element: Pb  
Test Code: PBQG  
Method: P3020  
Instrument: B

Date: 5/24/95  
Time: 08:13  
File #: 0524A

Analyst: WFC Units: ug/L  
Matrix: ☐ Soil ☒ Water ☐ Leachate: ☐ Water ☐ Soil ☐ Oil ☐ Other

## Sample #'s in Batch

05709-1c	05714-5c, 8D		
05710-1c			
05711-1c			
05754-1c			
05694-15-36			

Blank and Check Standard				Matrix Spike and Spike Duplicate Data						
Sample ID	Method	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec	% RPD
05709-1c	MB	50.0	103.4%	MB	50.0	49.5	48.9	99.0%	97.8%	1

## • FLAGS •

• = Values Outside QC Range

- ☐ MS or MSD out of QA/QC Limits (% Rec. 75-125)
- ☐ RPD out of QA/QC Limits (20 %)
- ☐ Soil LCS % Rec. Range

Analyst

Wally Edwards Date 5/24/95

Approved By

Wally Edwards

Date

5/24/95

Date

5/24/95

Telephone: 714/941-1111



# SPL QUALITY CONTROL SUMMARY

Atomic Absorption Analysis

Rev. 4/91

Element: Hg  
Test Code: HQAC  
Method: 7470  
Instrument: 3030B

Date: 6/2/95  
Time: 07:51  
File #: 06029

Analyst: JB  
Matrix: Soil ☐ Water ☒  
Leachate: ☐ Oil ☐ Other ☐  
Units: mg/L

Sample #'s in Batch

950573-16	950574-1E-3E	9505714-5080	9505760-1B	

Blank and Check Standard				Matrix Spike and Spike Duplicate Data					
Sample ID	Method Blank	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec.
05766-1B	#3 MD	2.00	1398.0	MD	2.00	1.83	1.89	91.5	94.5

- FLAGS •
- ☐ = Values Outside QC Range
  - ☐ MS or MSD out of QA/QC Limits (% Rec. 75-125)
  - ☐ RPD out of QA/QC Limits (20 %)
  - ☐ Soil LCS % Rec. Range
  - ☐ Sample used for QA/QC only
  - ☐ See Case Narrative

Analyst: JB Date: 6/2/95  
Approved By: Jean Mary Date: 6/2/95  
Idells Williams, QC Officer Date: 6/2/95



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-01

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 15:32:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	ND		µg/L

Surrogate

% Recovery

1,4-Difluorobenzene

108

4-Bromofluorobenzene

96

METHOD 5030/8020 \*\*\*

Analyzed by: YN

Date: 05/27/95

Cadmium, Total

ND

0.005

mg/L

METHOD 6010 \*\*\*

Analyzed by: DQ

Date: 06/05/95

Chromium, Total

ND

0.002

mg/L

METHOD 7191 \*\*\*

Analyzed by: WFL

Date: 06/01/95

Mercury, Total

ND

0.0004

mg/L

METHOD 7470 \*\*\*

Analyzed by: PB

Date: 06/06/95

ND - Not detected.

(P) - Practical Quantitation Limit

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





Certificate of Analysis No. H9-9505767-01

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 15:32:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Nickel, Total METHOD 6010 *** Analyzed by: DQ Date: 06/05/95	ND	0.02	mg/L	
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/24/95	05/24/95			
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 05/24/95	05/24/95			
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/31/95	ND	0.004	mg/L	

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-01

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 15:32:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	25	ug/L
Benzo(g,h,i)Perylene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505767-01

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 025-003-RB

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno (1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	25	ug/L
2-Nitrophenol	ND	5	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	25	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	5	ug/L
Phenanthrene	ND	25	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	5	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-01

Operational Tech

SAMPLE ID: 025-003-RB

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	99	35	114
2-Fluorobiphenyl	50 ug/L	85	43	116
Terphenyl-d14	50 ug/L	95	33	141
Phenol-d5	75 ug/L	50	10	110
2-Fluorophenol	75 ug/L	46	21	110
2,4,6-Tribromophenol	75 ug/L	61	10	123

ANALYZED BY: LH

DATE/TIME: 05/27/95 01:03:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-01

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003-RB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 15:32:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	1	µg/L
Chloromethane	ND	1	µg/L
Vinyl chloride	ND	1	µg/L
Bromomethane	ND	1	µg/L
Chloroethane	ND	1	µg/L
Trichlorofluoromethane	ND	1	µg/L
1,1-Dichloroethene	ND	1	µg/L
Methylene chloride	4	1	µg/L
Trans-1,2-Dichloroethene	ND	1	µg/L
1,1-Dichloroethane	ND	1	µg/L
Chloroform	5	1	µg/L
1,1,1-Trichloroethane	ND	1	µg/L
Carbon tetrachloride	ND	1	µg/L
1,2-Dichloroethane	ND	1	µg/L
2-Chloroethylvinyl ether	ND	1	µg/L
Trichloroethene	ND	1	µg/L
1,2-Dichloropropane	ND	1	µg/L
Bromodichloromethane	ND	1	µg/L
cis-1,3-Dichloropropene	ND	1	µg/L
trans-1,3-Dichloropropene	ND	1	µg/L
1,1,2-Trichloroethane	ND	1	µg/L
Tetrachloroethene	ND	1	µg/L
Dibromochloromethane	ND	1	µg/L
Chlorobenzene	ND	1	µg/L
Bromoform	ND	1	µg/L
1,1,2,2-Tetrachloroethane	ND	1	µg/L
1,3-Dichlorobenzene	ND	1	µg/L
1,4-Dichlorobenzene	ND	1	µg/L
1,2-Dichlorobenzene	ND	1	µg/L

METHOD: 8010, Halogenated Volatile Organics  
(continued on next page)



Certificate of Analysis No. H9-9505767-01

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 025-003-RB

SURROGATES  
1-Chloro-2-Fluorobenzene

% RECOVERY  
92

ANALYZED BY: JZL

DATE/TIME: 05/27/95 05:07:00

METHOD: 8010, Halogenated Volatile Organics

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

SPL Houston Labs

Data file : /chem/h.i/h950526.b/h146s17.d

Lab Smp Id:

Inj Date : 27-MAY-95 01:03

Operator : LH

Inst ID: h.i

Smp Info : 9505767-01B-8270W/1X

Misc Info : E142C1/J142B01/H146CC1

Comment :

Method : /chem/h.i/h950526.b/hclpw.m

Meth Date : 30-May-1995 09:24 liping

Quant Type: ISTD

Cal Date : 26-MAY-1995 13:43

Cal File: h146cc1.d

Als bottle: 25

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG				CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
	----	--	-----	-----	-----	( ng)	( ug/L)
* 11 1,4-Dichlorobenzene-d4	152.00	4.092	4.080	(1.000)	248266	40	
* 32 Naphthalene-d8	136.00	5.277	5.265	(1.000)	651927	40	
* 48 Acenaphthene-d10	164.00	7.031	7.019	(1.000)	297841	40	
* 65 Phenanthrene-d10	188.00	8.524	8.512	(1.000)	295739	40	
* 76 Chrysene-d12	240.00	11.297	11.273	(1.000)	97954	40	
* 83 Perylene-d12	264.00	13.347	13.323	(1.000)	53356	40	
\$ 23 Nitrobenzene-d5	82.00	4.613	4.590	(0.874)	625207	99	49
\$ 41 2-Fluorobiphenyl	172.00	6.355	6.343	(0.904)	885300	85	42
\$ 72 Terphenyl-d14	244.00	10.159	10.147	(0.899)	260150	95	47
\$ 4 Phenol-d5	99.00	3.831	3.807	(0.936)	866615	75	38
\$ 3 2-Fluorophenol	112.00	3.108	3.085	(0.760)	763744	68	34
\$ 61 2,4,6-Tribromophenol	329.70	7.848	7.837	(0.921)	65075	92	46 (Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h146s17.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950526.b/hclpw.m  
Misc Info: E142C1/J142B01/H146CC1

Calibration Date: 05/26/95  
Calibration Time: 1343

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	248407	124204	496814	248266	-0.06
32 Naphthalene-d8	844661	422330	1689322	651927	-22.82
48 Acenaphthene-d10	317019	158510	634038	297841	-6.05
65 Phenanthrene-d10	323627	161814	647254	295739	-8.62
76 Chrysene-d12	135631	67816	271262	97954	-27.78
83 Perylene-d12	74718	37359	149436	53356	-28.59

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.08	3.58	4.58	4.09	0.29
32 Naphthalene-d8	5.27	4.77	5.77	5.28	0.22
48 Acenaphthene-d10	7.02	6.52	7.52	7.03	0.17
65 Phenanthrene-d10	8.51	8.01	9.01	8.52	0.14
76 Chrysene-d12	11.27	10.77	11.77	11.30	0.21
83 Perylene-d12	13.32	12.82	13.82	13.35	0.18

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950526.b/h146s17.d  
Date : 27-MAY-95 01:03

Client ID:

Sample Info: 9505767-01B-8270M/1X

Volume Injected (uL): 2.0

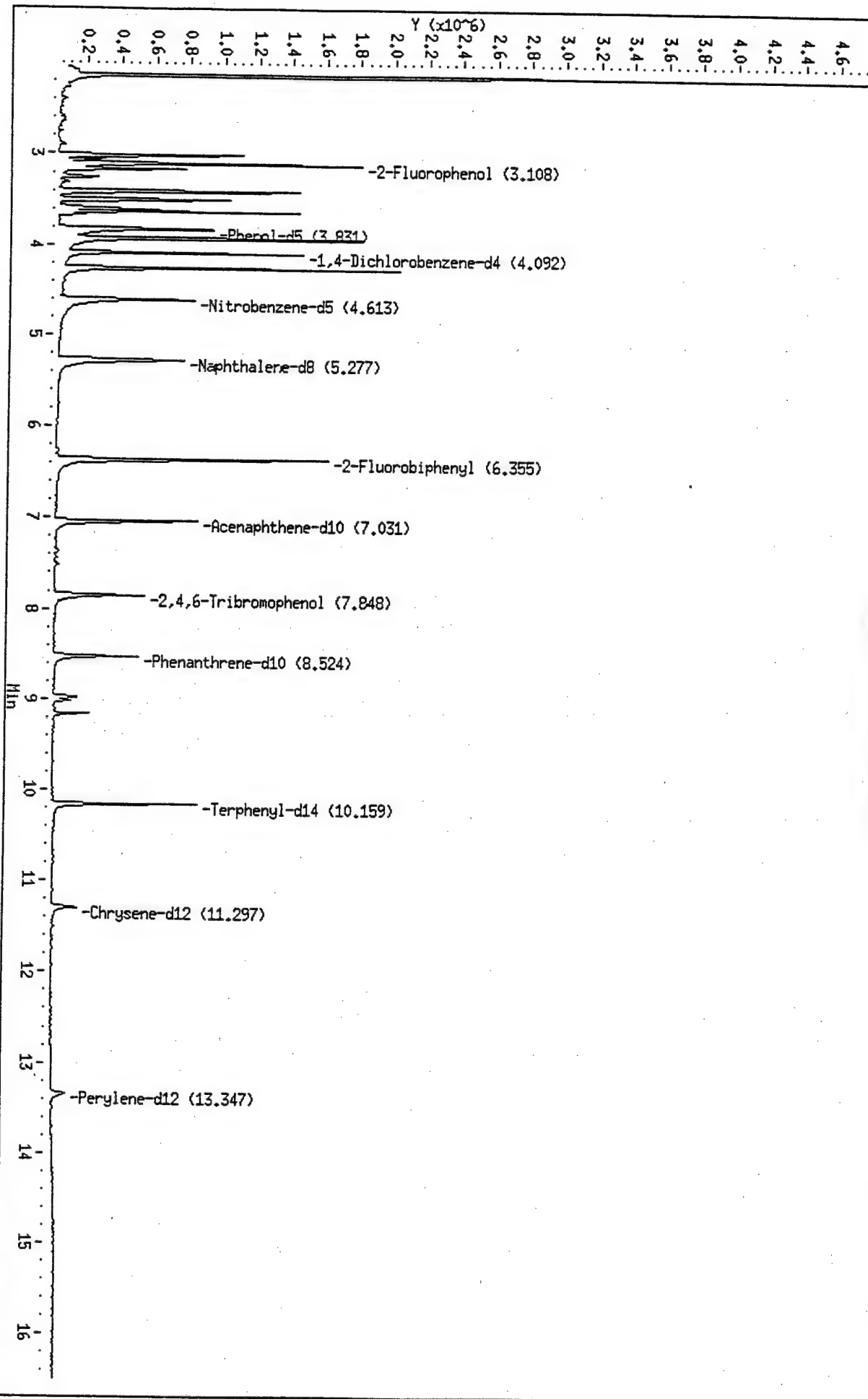
Column phase:

Instrument: h.1

Operator: LH

Column diameter: 0.25

/chem/h.1/h950526.b/h146s17.d





Version: 3.2 <16C20>  
 File Name : 9505767-01D Time : 05/27/95 14:25  
 Sample Number: SC ;W;1 Study : BTEXW;1  
 : YN  
 : HP\_J Channel : A A/D mV Range : 1000  
 Sampler : NONE  
 /Vial : 0/0

Serial # : 1092573380 Data Acquisition Time: 05/27/95 14:08  
 Time : 0.00 min.  
 Time : 17.33 min.  
 Rate : 2.0000 pts/sec

File : l:\data\tchrom\btex\varj\J\_\_363.raw  
 File : l:\data\tchrom\btex\varj\J\_\_363.rst  
 File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
 File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc  
 File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
 File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

Volume : 2 ul Area Reject : 300.00  
 Amount : 1.0000 Dilution Factor : 1.00

# BTEX Area Percent Report

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
9.924	122892.50	23972.33	BB	1133.0460	0.4458	108.4621	1,4-DIFLUOROBENZENE	108.4621	-0.0259
5.598	275662.50	56521.89	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0240
6.798	455.50	120.41	BB	2392.8377	0.0017	0.1904	Toluene	0.1904	-0.0149
6.500	142536.75	28566.91	BB	1491.1541	0.5171	95.5882	4-BROMOFLUOROBENZENE	95.5882	-0.0025
	541547.25	109181.53				204.2406		204.2406	-0.0673

Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_363.TX0

# Chromatogram

File Name : 9505767-01D

Sample Name : l:\data\tchrom\btex\varj\J\_363.raw

Mod : HP\_J.ins

Start Time : 0.00 min

Gain Factor : 1

End Time : 17.33 min

Plot Offset: 2 mV

Sample #: SC ;W;1

Date : 05/27/95 14:26

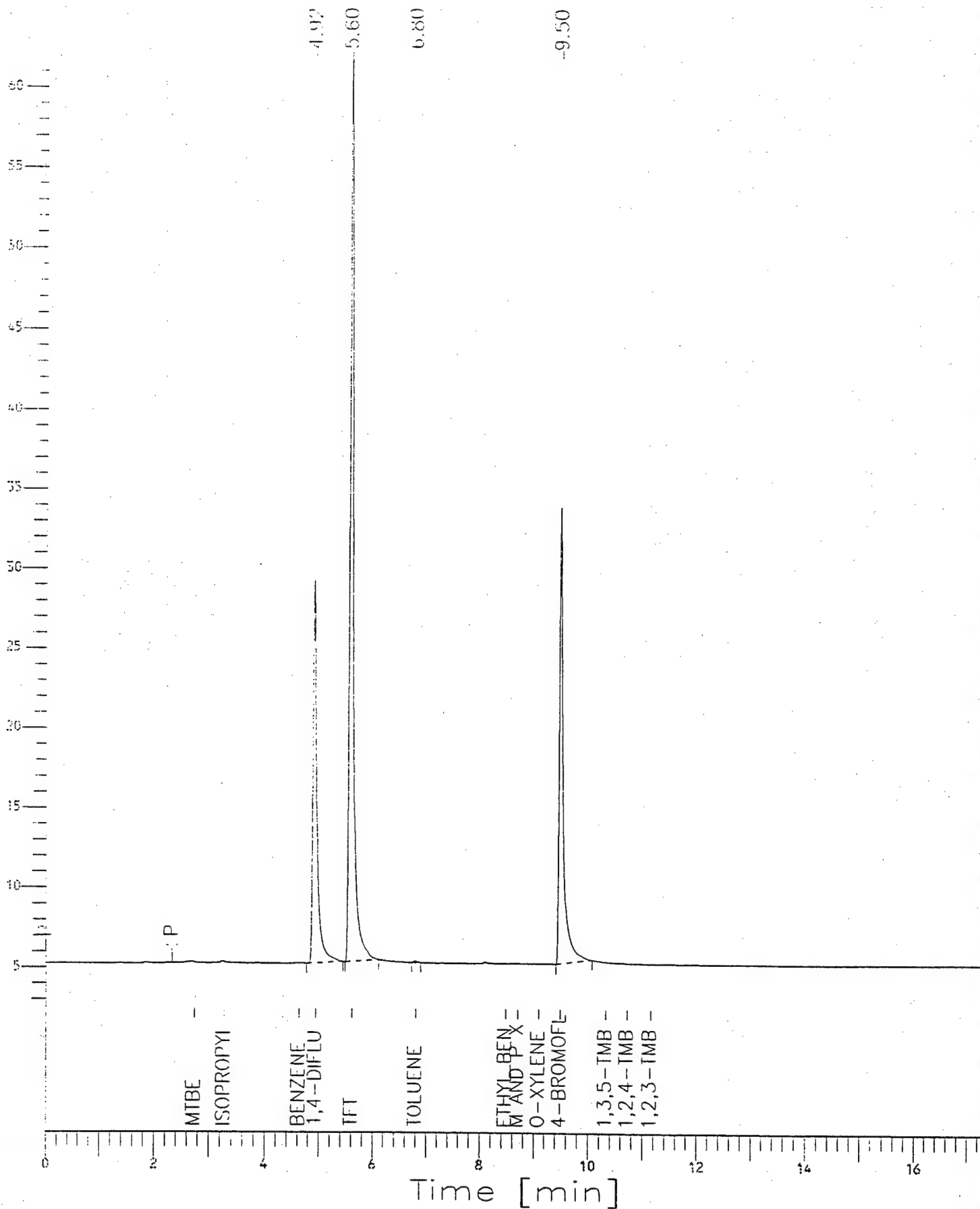
Time of Injection: 05/27/95 14:08

Low Point : 2.43 mV

Plot Scale: 59 mV

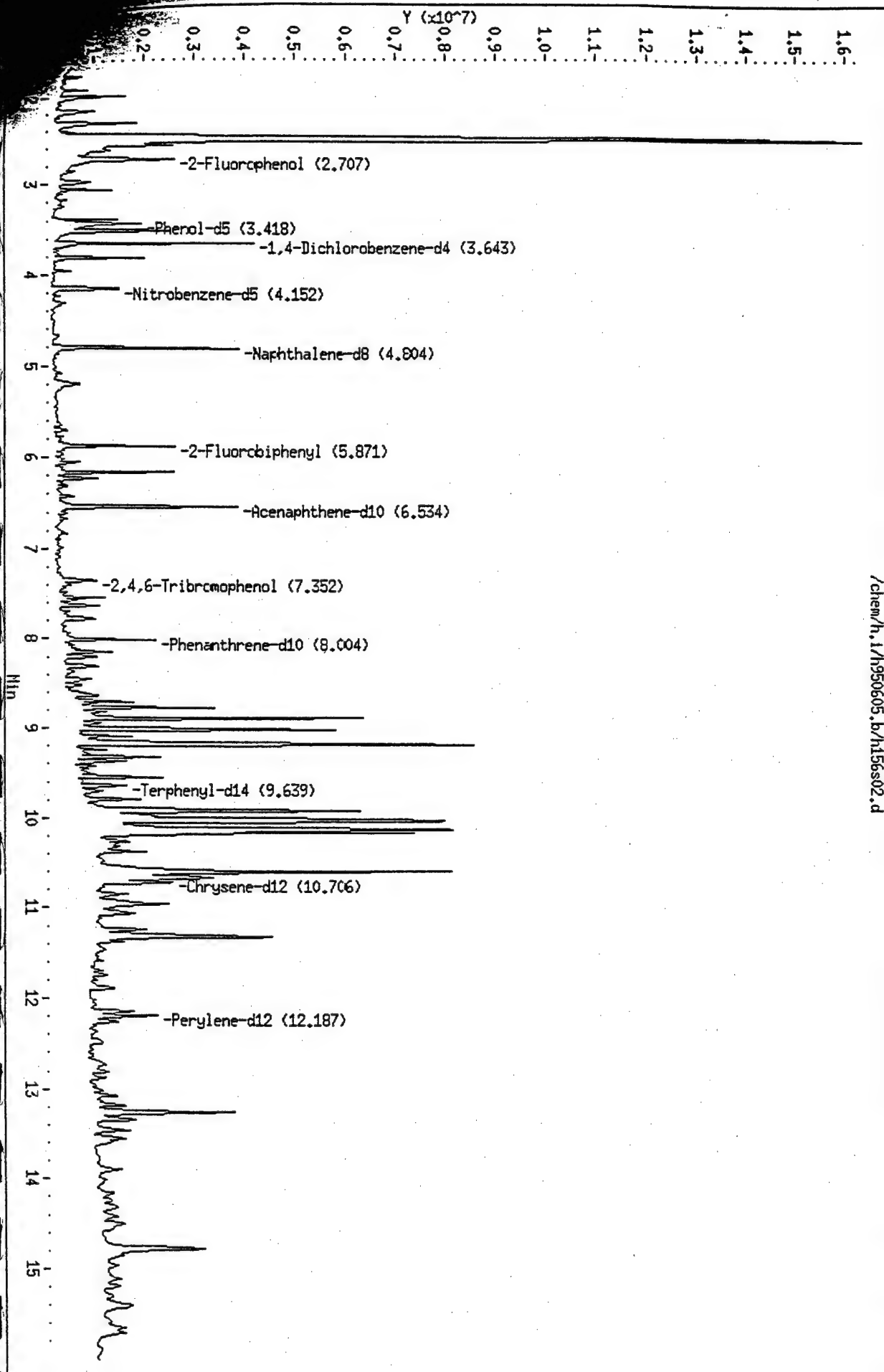
Page 1 of 1

High Point : 61.76 mV



Data File: /chem/h.1/h950605.b/h156s02.d  
Date : 05-JUN-1995 17:00  
Client ID:  
Sample Info: 9505766-06A-82705/3X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





## Certificate of Analysis No. H9-9505767-02

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: SI-002FB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 14:25:00  
DATE RECEIVED: 05/20/95

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 06/05/95		ND	0.005	mg/L
Chromium, Total METHOD 7191 *** Analyzed by: WFL Date: 06/01/95		ND	0.002	mg/L
Mercury, Total METHOD 7470 *** Analyzed by: PB Date: 06/06/95		ND	0.0004	mg/L
Nickel, Total METHOD 6010 *** Analyzed by: DQ Date: 06/05/95		ND	0.02	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/24/95	05/24/95			

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-02

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: SI-002FB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 14:25:00  
DATE RECEIVED: 05/20/95

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 05/24/95		05/24/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/31/95		ND	0.004	mg/L

ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-02

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: SI-002FB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 14:25:00  
DATE RECEIVED: 05/20/95

PARAMETER	ANALYTICAL DATA		PQL*	UNITS
	RESULTS			
Benzene	ND	5		ug/L
Bromobenzene	ND	5		ug/L
Bromochloromethane	ND	5		ug/L
Bromodichloromethane	ND	5		ug/L
Bromoform	ND	5		ug/L
Bromomethane	ND	5		ug/L
n-Butylbenzene	ND	10		ug/L
sec-Butylbenzene	ND	5		ug/L
tert-Butylbenzene	ND	5		ug/L
Carbon tetrachloride	ND	5		ug/L
Chlorobenzene	ND	5		ug/L
Chlorodibromomethane	ND	5		ug/L
Chloroethane	ND	5		ug/L
Chloroform	ND	10		ug/L
Chloromethane	6	5		ug/L
2-Chlorotoluene	ND	10		ug/L
4-Chlorotoluene	ND	5		ug/L
1,2-Dibromo-3-chloropropane	ND	5		ug/L
1,2-Dibromoethane	ND	5		ug/L
Dibromomethane	ND	5		ug/L
1,2-Dichlorobenzene	ND	5		ug/L
1,3-Dichlorobenzene	ND	5		ug/L
1,4-Dichlorobenzene	ND	5		ug/L
Dichlorodifluoromethane	ND	5		ug/L
1,1-Dichloroethane	ND	10		ug/L
1,2-Dichloroethane	ND	5		ug/L
1,1-Dichloroethene	ND	5		ug/L
1,2-Dichloropropane	ND	5		ug/L
1,3-Dichloropropane	ND	5		ug/L
2,2-Dichloropropane	ND	5		ug/L
1,1-Dichloropropene	ND	5		ug/L
Ethylbenzene	ND	5		ug/L
Hexachlorobutadiene	ND	5		ug/L
Isopropylbenzene	ND	5		ug/L
p-Isopropyltoluene	ND	5		ug/L
Methylene chloride	ND	5		ug/L
Naphthalene	ND	5		ug/L
n-Propylbenzene	ND	5		ug/L

METHOD: 8260 Water, Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 680-0901

Certificate of Analysis No. H9-9505767-02

Operational Tech

SAMPLE ID: SI-002FB

ANALYTICAL DATA (continued)			
PARAMETER	RESULTS	PQL*	UNITS
Styrene	ND	5	ug/L
1,1,1,2-Tetrachloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Toluene	ND	5	ug/L
1,2,3-Trichlorobenzene	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Trichlorofluoromethane	ND	5	ug/L
1,2,3-Trichloropropane	ND	5	ug/L
1,2,4-Trimethylbenzene	ND	5	ug/L
1,3,5-Trimethylbenzene	ND	5	ug/L
Vinyl chloride	ND	10	ug/L
Xylenes (total)	ND	5	ug/L
1,2-Dichloroethene (total)	ND	5	ug/L

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
1,2-Dichloroethane-d4	50	96	76	114
Toluene-d8	50	96	88	110
4-Bromofluorobenzene	50	96	86	115

ANALYZED BY: JC

DATE/TIME: 05/25/95 00:53:00

METHOD: 8260 Water, Volatile Organics

NOTES: \* - Practical Quantitation Limit

NA - Not Analyzed

ND - Not Detected

D - Surr. diluted out.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL Labs

Volatiles by 624/8240

Data file : /chem/l.i/1950524.b/l144s10.d  
Lab Smp Id:   
Inj Date : 25-MAY-1995 00:53  
Operator : JC  
Smp Info : 9505767-02A-8260W/1X  
Misc Info : L144W2/L144B03/L144CW3  
Comment :   
Method : /chem/l.i/1950524.b/l18260w.m  
Meth Date : 24-May-1995 20:31 jimmy  
Cal Date : 24-MAY-1995 20:04  
Als bottle: 20  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: l.i

Quant Type: ISTD  
Cal File: l144cw3.d

Compound Sublist: 8260.sub

Compounds	QUANT SIG	CONCENTRATIONS					
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN FINAL ( ng) ( ug/L)
-----	----	----	--	-----	-----	-----	-----
18 Chloroform	83.00	5.235	5.241	(0.900)	22874	32	6
2 Pentafluorobenzene	168.00	5.814	5.820	(1.000)	205422	250	
24 1,4-Difluorobenzene	114.00	6.928	6.925	(1.000)	258467	250	
38 Chlorobenzene-d5	117.00	11.100	11.106	(1.000)	206228	250	
48 1,4-Dichlorobenzene-d4	152.00	14.487	14.493	(1.000)	105832	250	
19 1,2-Dichloroethane-d4	102.00	5.992	5.990	(0.865)	19240	240	48
32 Toluene-d8	98.00	9.157	9.154	(1.322)	270895	240	48
47 Bromofluorobenzene	95.00	12.776	12.782	(1.844)	116003	240	48



Data File: /chem/1.1/1950524.b/1144s10.d

Date: 25-MAY-1995 00:53

Client ID:

Sample Info: 9505767-02A-8260M/1X

Purge Volume: 5.0

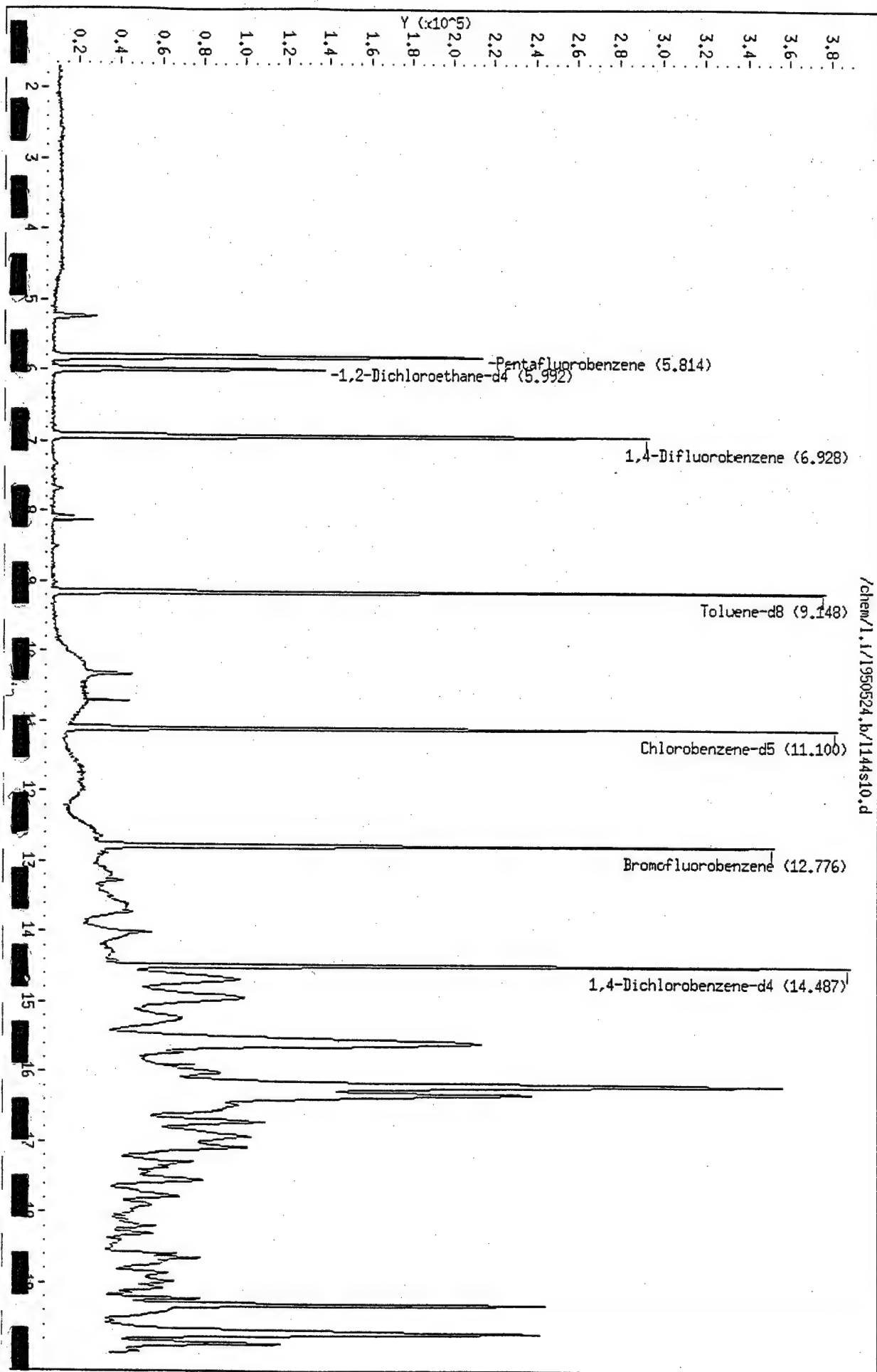
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950524.b/1144s10.d



Data File: /chem/1.i/1950524.b/l144s10.d

Date : 25-MAY-1995 00:53

Client ID:

Instrument: 1.i

Sample Info: 9505767-02A-8260W/1X

Purge Volume: 5.0

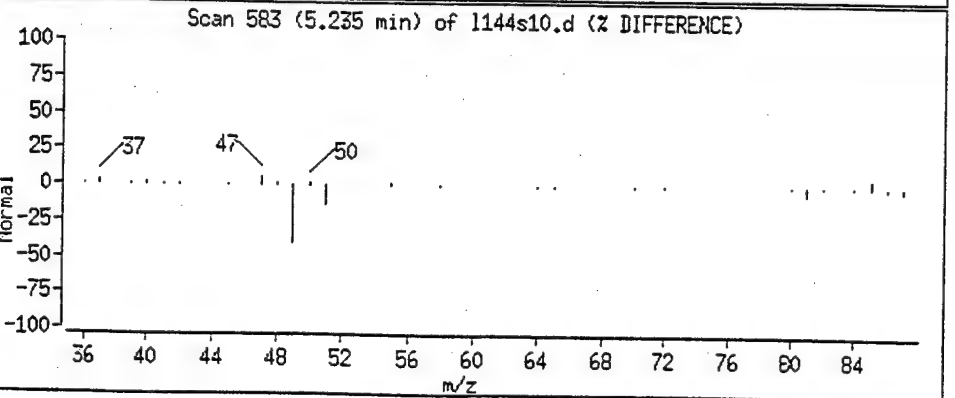
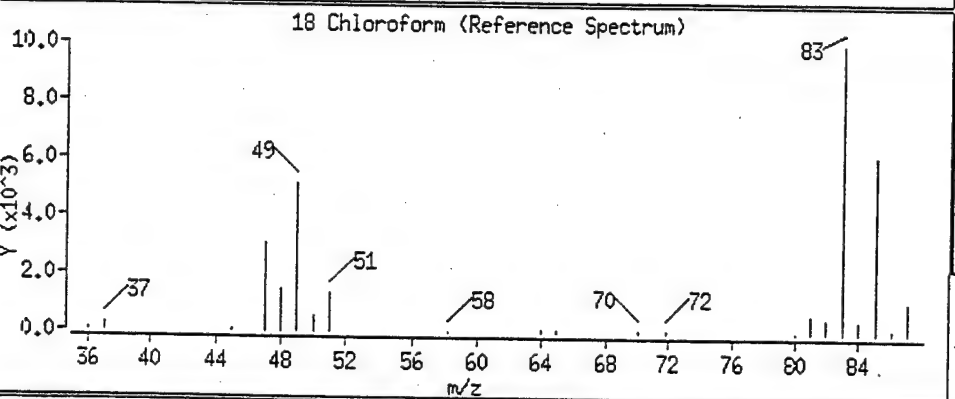
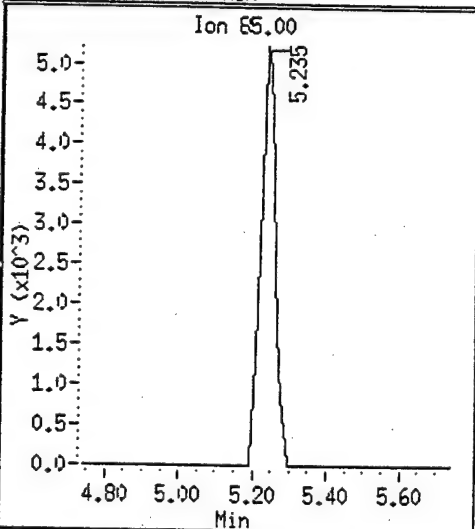
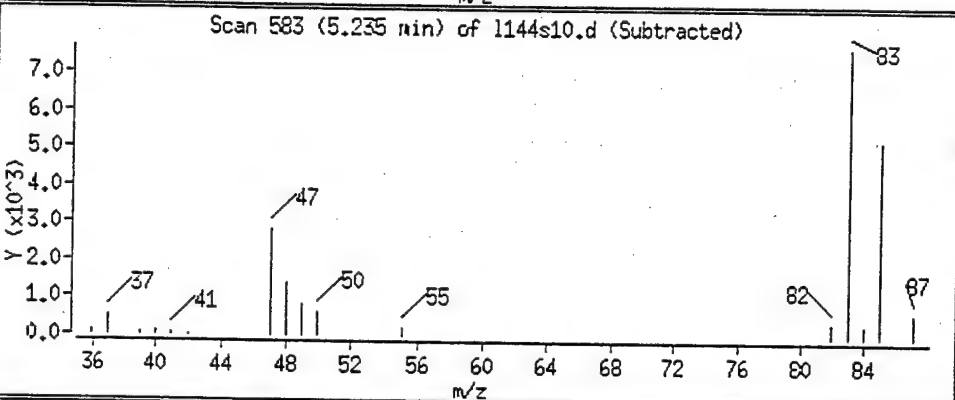
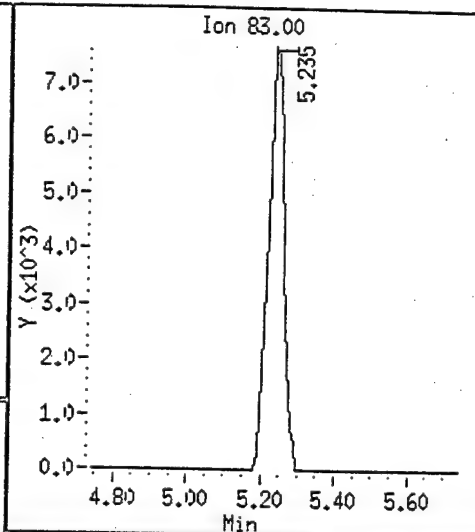
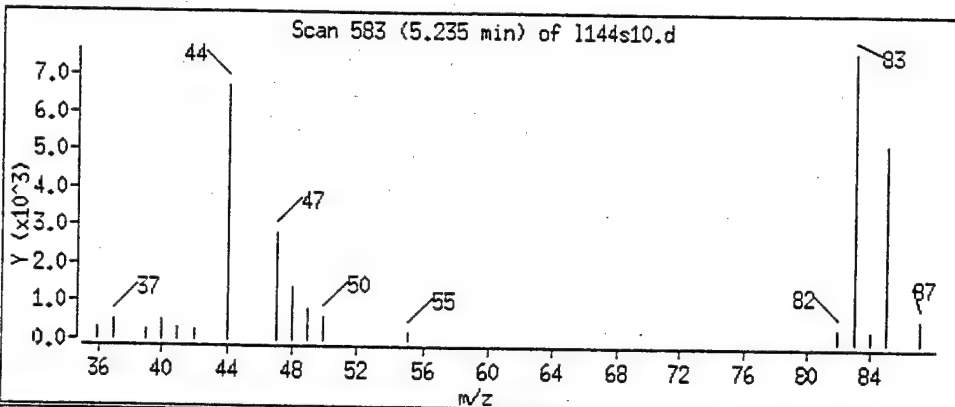
Operator: JC

Column phase: 30m,hp5ms,0.25u df

Column diameter: 0.25

Page 5

18 Chloroform





Certificate of Analysis No. H9-9505767-03

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-001-MW-GW01

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 15:00:00  
DATE RECEIVED: 05/20/95

#### ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
BENZENE	ND	1 P	µg/L
TOLUENE	ND	1 P	µg/L
ETHYLBENZENE	ND	1 P	µg/L
TOTAL XYLENE	ND	1 P	µg/L
TOTAL BTEX	ND		µg/L

#### Surrogate

#### % Recovery

1,4-Difluorobenzene  
4-Bromofluorobenzene

109  
101

METHOD 5030/8020 \*\*\*

Analyzed by: YN

Date: 05/28/95

Cadmium, Total

METHOD 6010 \*\*\*

Analyzed by: DQ

Date: 06/05/95

ND

0.005

mg/L

Chromium, Total

METHOD 7191 \*\*\*

Analyzed by: WFL

Date: 06/01/95

0.036

0.002

mg/L

Mercury, Total

METHOD 7470 \*\*\*

Analyzed by: PB

Date: 06/06/95

ND

0.0004

mg/L

ND - Not detected.

(P) - Practical Quantitation Limit

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-03

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
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Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-001-MW-GW01

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 15:00:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Nickel, Total METHOD 6010 *** Analyzed by: DQ Date: 06/05/95	0.07	0.02	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/24/95	05/24/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 05/24/95	05/24/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/31/95	0.008	0.004	mg/L

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.



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Certificate of Analysis No. H9-9505767-03

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-001-MW-GW01

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 15:00:00  
DATE RECEIVED: 05/20/95

PARAMETER	ANALYTICAL DATA		
	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	1	µg/L
Chloromethane	ND	1	µg/L
Vinyl chloride	ND	1	µg/L
Bromomethane	ND	1	µg/L
Chloroethane	ND	1	µg/L
Trichlorofluoromethane	ND	1	µg/L
1,1-Dichloroethene	ND	1	µg/L
Methylene chloride	ND	1	µg/L
Trans-1,2-Dichloroethene	ND	1	µg/L
1,1-Dichloroethane	ND	1	µg/L
Chloroform	ND	1	µg/L
1,1,1-Trichloroethane	ND	1	µg/L
Carbon tetrachloride	ND	1	µg/L
1,2-Dichloroethane	ND	1	µg/L
2-Chloroethylvinyl ether	ND	1	µg/L
Trichloroethene	ND	1	µg/L
1,2-Dichloropropane	ND	1	µg/L
Bromodichloromethane	ND	1	µg/L
cis-1,3-Dichloropropene	ND	1	µg/L
trans-1,3-Dichloropropene	ND	1	µg/L
1,1,2-Trichloroethane	ND	1	µg/L
Tetrachloroethene	ND	1	µg/L
Dibromochloromethane	ND	1	µg/L
Chlorobenzene	ND	1	µg/L
Bromoform	ND	1	µg/L
1,1,2,2-Tetrachloroethane	ND	1	µg/L
1,3-Dichlorobenzene	ND	1	µg/L
1,4-Dichlorobenzene	ND	1	µg/L
1,2-Dichlorobenzene	ND	1	µg/L

METHOD: 8010, Halogenated Volatile Organics  
(continued on next page)



Certificate of Analysis No. H9-9505767-03

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 025-001-MW-GW01

SURROGATES

1-Chloro-2-Fluorobenzene

% RECOVERY

90

ANALYZED BY: JZL

DATE/TIME: 05/27/95 06:18:00

METHOD: 8010, Halogenated Volatile Organics

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-03

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HOUSTON, TEXAS 77054  
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Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-001-MW-GW01

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 15:00:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	5	ug/L
Benzo(g,h,i)Perylene	ND	25	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505767-03

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 025-001-MW-GW01

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno (1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	25	ug/L
2-Nitrophenol	ND	5	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	25	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	5	ug/L
Phenanthrene	ND	25	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	5	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)





## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-03

Operational Tech

SAMPLE ID: 025-001-MW-GW01

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	90	35	114
2-Fluorobiphenyl	50 ug/L	80	43	116
Terphenyl-d14	50 ug/L	82	33	141
Phenol-d5	75 ug/L	47	10	110
2-Fluorophenol	75 ug/L	43	21	110
2,4,6-Tribromophenol	75 ug/L	53	10	123

ANALYZED BY: LH

DATE/TIME: 05/27/95 00:39:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS: \*SP\* for Target Compound List

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

SPL Houston Labs

Data file : /chem/h.i/h950526.b/h146s16.d

Lab Smp Id:

Inj Date : 27-MAY-95 00:39

Operator : LH

Inst ID: h.i

Smp Info : 9505767-02B-8270W/1X

Misc Info : E142C1/J142B01/H146CC1

Comment :

Method : /chem/h.i/h950526.b/hclpw.m

Meth Date : 30-May-1995 09:24 liping

Quant Type: ISTD

Cal Date : 26-MAY-1995 13:43

Cal File: h146cc1.d

Als bottle: 24

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
* 11 1,4-Dichlorobenzene-d4	152.00	4.091	4.080	(1.000)	192929	40	
* 32 Naphthalene-d8	136.00	5.276	5.265	(1.000)	536539	40	
* 48 Acenaphthene-d10	164.00	7.030	7.019	(1.000)	248774	40	
* 65 Phenanthrene-d10	188.00	8.523	8.512	(1.000)	246496	40	
* 76 Chrysene-d12	240.00	11.296	11.273	(1.000)	85999	40	
* 83 Perylene-d12	264.00	13.347	13.323	(1.000)	46650	40	
\$ 23 Nitrobenzene-d5	82.00	4.613	4.590	(0.874)	467439	90	45
\$ 41 2-Fluorobiphenyl	172.00	6.355	6.343	(0.904)	694225	80	40
\$ 72 Terphenyl-d14	244.00	10.159	10.147	(0.899)	197241	82	41
\$ 4 Phenol-d5	99.00	3.831	3.807	(0.936)	629311	70	35
\$ 3 2-Fluorophenol	112.00	3.108	3.085	(0.760)	559583	64	32
\$ 61 2,4,6-Tribromophenol	329.70	7.848	7.837	(0.921)	46779	79	40 (Q)

QC Flag Legend

Q - Qualifier signal failed the ratio test.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h146s16.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950526.b/hclpw.m  
 Misc Info: E142C1/J142B01/H146CC1

Calibration Date: 05/26/95  
 Calibration Time: 1343

Level: LOW  
 Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	248407	124204	496814	192929	-22.33
32 Naphthalene-d8	844661	422330	1689322	536539	-36.48
48 Acenaphthene-d10	317019	158510	634038	248774	-21.53
65 Phenanthrene-d10	323627	161814	647254	246496	-23.83
76 Chrysene-d12	135631	67816	271262	85999	-36.59
83 Perylene-d12	74718	37359	149436	46650	-37.57

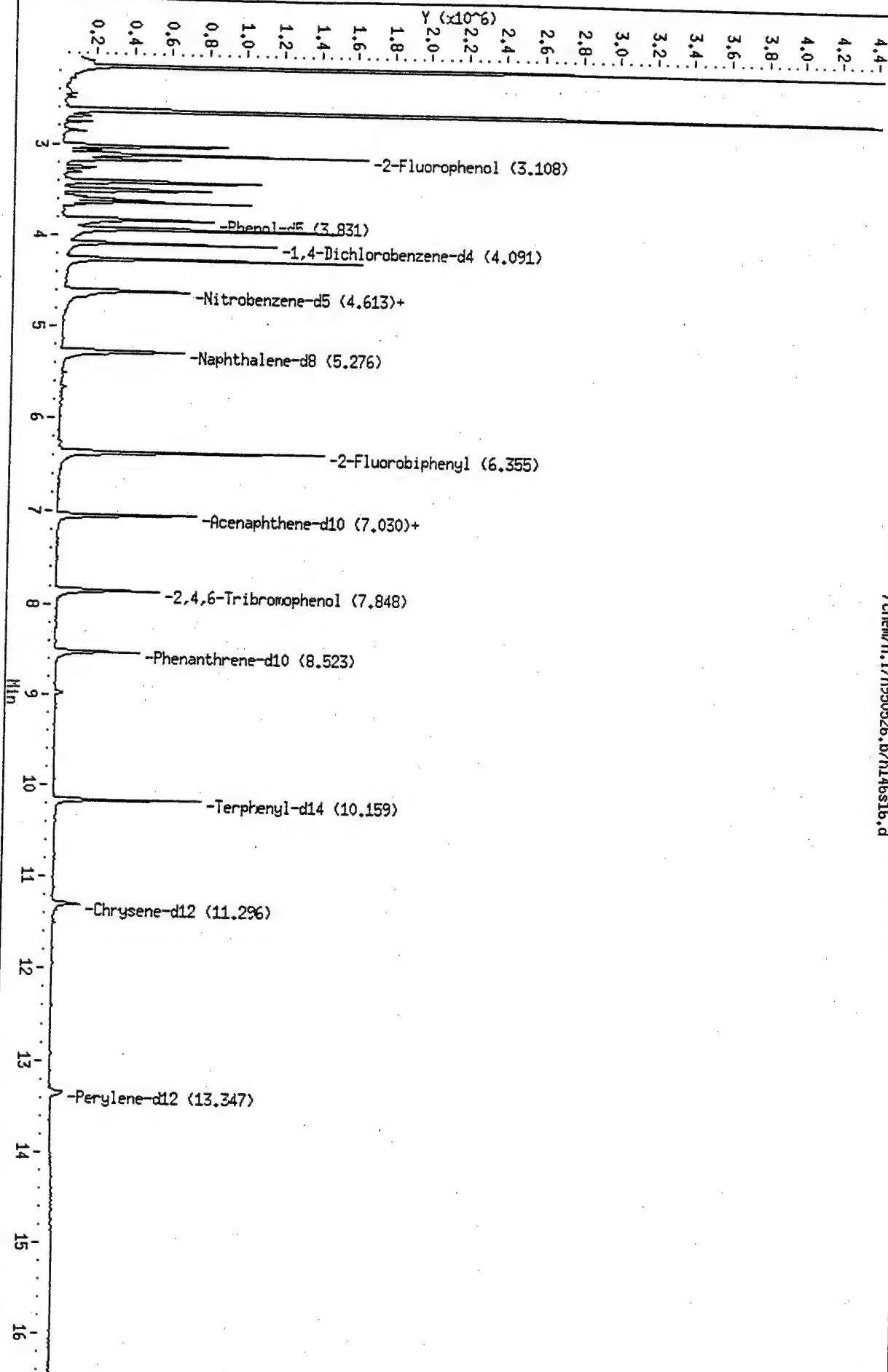
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.08	3.58	4.58	4.09	0.28
32 Naphthalene-d8	5.27	4.77	5.77	5.28	0.22
48 Acenaphthene-d10	7.02	6.52	7.52	7.03	0.16
65 Phenanthrene-d10	8.51	8.01	9.01	8.52	0.13
76 Chrysene-d12	11.27	10.77	11.77	11.30	0.21
83 Perylene-d12	13.32	12.82	13.82	13.35	0.17

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950526.b/h146s16.d  
Date : 27-MAY-95 00:39  
Client ID:  
Sample Info: 9505767-02B-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950526.b/h146s16.d



=====

Software Version: 3.2 <16C20>  
File Name : 9505767-03D  
File Number: SC;W;1  
Operator : YN  
Time : 05/28/95 03:44  
Study : BTEXW;1  
Invent : HP\_J  
Sampler : NONE  
K/Vial : 0/0  
Channel : A A/D mV Range : 1000

=====

Process Serial # : 1092573380 Data Acquisition Time: 05/28/95 03:27  
Injection Time : 0.00 min.  
Time : 17.33 min.  
Pumping Rate : 2.0000 pts/sec

=====

Data File : L:\data\tchrom\btex\varj\J\_\_394.raw  
Ult File : L:\data\tchrom\btex\varj\J\_\_394.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
Method File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc  
Data File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\JTEXJ.seq

=====

Volume : 2 ul  
Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

=====

BTEX Area Percent Report

=====

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
4.920	118668.77	23444.50	BB	1090.4821	0.4473	108.8223	1,4-DIFLUOROBENZENE	108.8223	-0.0302
5.594	265307.00	55016.37	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0282
9.493	144835.75	29822.09	BB	1435.1375	0.5459	100.9212	4-BROMOFLUOROBENZENE	100.9212	-0.0090
	528811.50	108282.96				209.7435		209.7435	-0.0675

=====

=====

Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_394.TX0

## Chromatogram

mple Name : 9505767-03D

ieName : l:\data\tchrom\btext\varj\J\_\_394.raw

thod : HP\_J.ins

art Time : 0.00 min

ale Factor: 1

End Time : 17.33 min

Plot Offset: 3 mV

Sample #: SC ;W;1

Date : 05/28/95 03:44

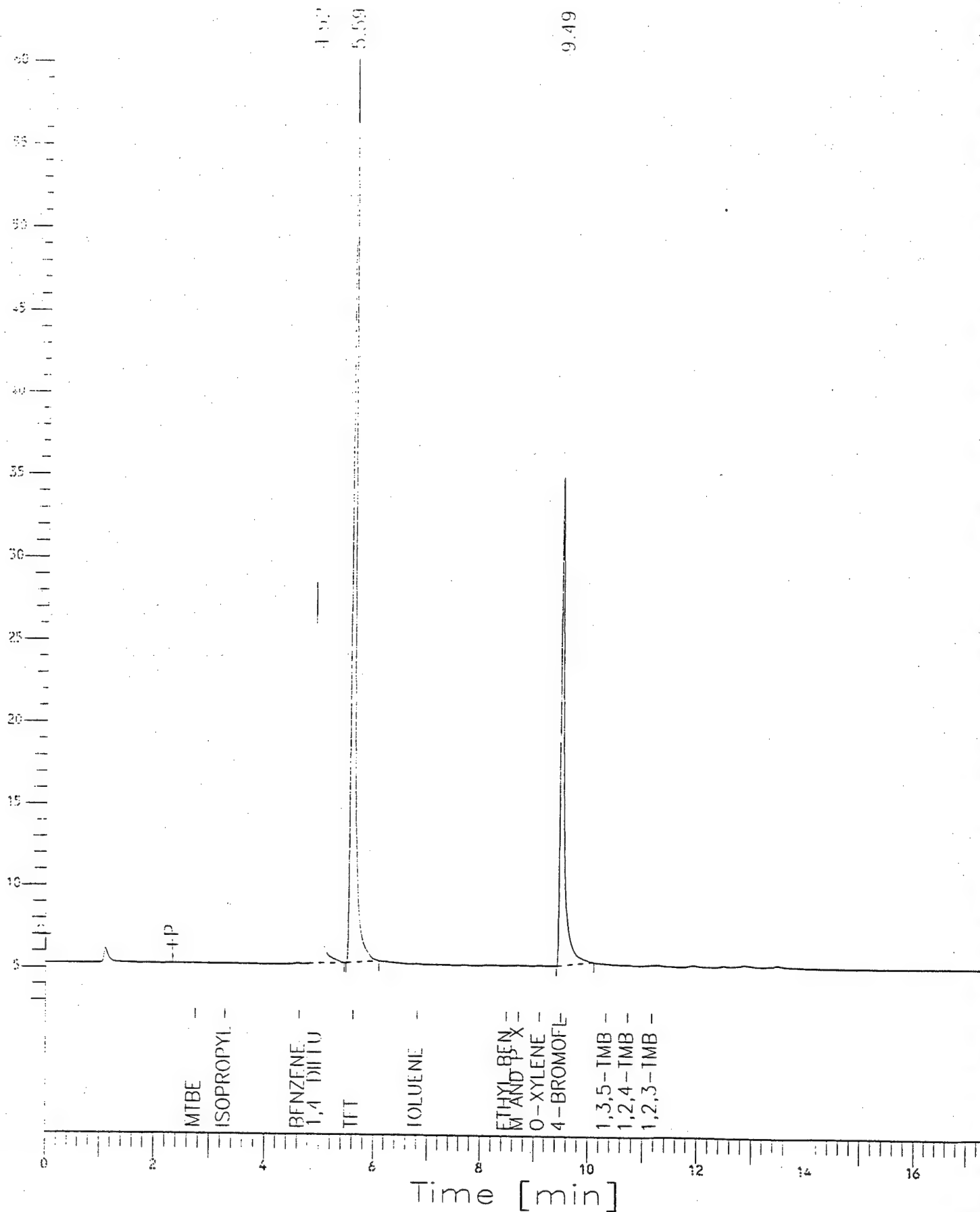
Time of Injection: 05/28/95 03:27

Low Point : 2.51 mV

Plot Scale: 58 mV

Page 1 of 1

High Point : 60.28 mV





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-04

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Provided by SPL  
SAMPLE ID: 025-TB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95  
DATE RECEIVED: 05/20/95

PARAMETER	ANALYTICAL DATA		DETECTION LIMIT	UNITS
	RESULTS			
BENZENE	ND		1 P	µg/L
TOLUENE	ND		1 P	µg/L
ETHYLBENZENE	ND		1 P	µg/L
TOTAL XYLENE	ND		1 P	µg/L
TOTAL BTEX	ND			µg/L

Surrogate

% Recovery

1,4-Difluorobenzene

109

4-Bromofluorobenzene

98

METHOD 5030/8020 \*\*\*

Analyzed by: YN

Date: 05/27/95

ND - Not detected.

(P) - Practical Quantitation Limit

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-04

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Provided by SPLhnology  
SAMPLE ID: 025-TB

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	1	µg/L
Chloromethane	ND	1	µg/L
Vinyl chloride	ND	1	µg/L
Bromomethane	ND	1	µg/L
Chloroethane	ND	1	µg/L
Trichlorofluoromethane	ND	1	µg/L
1,1-Dichloroethene	ND	1	µg/L
Methylene chloride	ND	1	µg/L
Trans-1,2-Dichloroethene	B 3	1	µg/L
1,1-Dichloroethane	ND	1	µg/L
Chloroform	ND	1	µg/L
1,1,1-Trichloroethane	ND	1	µg/L
Carbon tetrachloride	ND	1	µg/L
1,2-Dichloroethane	ND	1	µg/L
2-Chloroethylvinyl ether	ND	1	µg/L
Trichloroethene	ND	1	µg/L
1,2-Dichloropropane	ND	1	µg/L
Bromodichloromethane	ND	1	µg/L
cis-1,3-Dichloropropene	ND	1	µg/L
trans-1,3-Dichloropropene	ND	1	µg/L
1,1,2-Trichloroethane	ND	1	µg/L
Tetrachloroethene	ND	1	µg/L
Dibromochloromethane	ND	1	µg/L
Chlorobenzene	ND	1	µg/L
Bromoform	ND	1	µg/L
1,1,2,2-Tetrachloroethane	ND	1	µg/L
1,3-Dichlorobenzene	ND	1	µg/L
1,4-Dichlorobenzene	ND	1	µg/L
1,2-Dichlorobenzene	ND	1	µg/L

METHOD: 8010, Halogenated Volatile Organics  
(continued on next page)





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-04

Operational Tech

SAMPLE ID: 025-TB

SURROGATES  
1-Chloro-2-Fluorobenzene

% RECOVERY  
84

ANALYZED BY: JZL

DATE/TIME: 05/28/95 17:34:00

METHOD: 8010, Halogenated Volatile Organics

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

B = Compound present in Method Blank

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

=====  
ftware Version: 3.2 <16C20>  
mple Name : 9505767-04D                      Time : 05/27/95 04:15  
mple Number: SC ;W;1                      Study : BTEXW;1  
erator : YN

strument : HP\_J                      Channel : A      A/D mV Range : 1000  
toSampler : NONE  
ck/Vial : 0/0

terface Serial # : 1092573380      Data Acquisition Time: 05/27/95 03:57  
ay Time : 0.00 min.  
d Time : 17.33 min.  
mpling Rate : 2.0000 pts/sec

v Data File : l:\data\tchrom\btex\varj\J\_\_346.raw  
ult File : l:\data\tchrom\btex\varj\J\_\_346.rst  
strument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
ccess File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc  
mple File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
quence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

l. Volume : 2 ul                      Area Reject : 300.00  
mple Amount : 1.0000                      Dilution Factor : 1.00

=====  
BTEX Area Percent Report  
=====

Peak Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
4.918	119856.00	23929.68	BB	1095.3384	0.4498	109.4237	1,4-DIFLUOROBENZENE	109.4237	-0.0317
5.593	266488.50	55761.89	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0287
9.495	141641.75	30139.72	BB	1441.5288	0.5315	98.2580	4-BROMOFLUOROBENZENE	98.2580	-0.0068
527986.25		109831.28				207.6817		207.6817	-0.0671

=====  
ort Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_346.TX0

# Chromatogram

File Name : 9505767-04D

Sample Name : l:\data\tchrom\btex\varj\J\_346.raw

Hardware : HP\_J.ins

Start Time : 0.00 min

Gain Factor : 1

End Time : 17.33 min

Plot Offset : 3 mV

Sample #: SC ;W;1

Date : 05/27/95 04:15

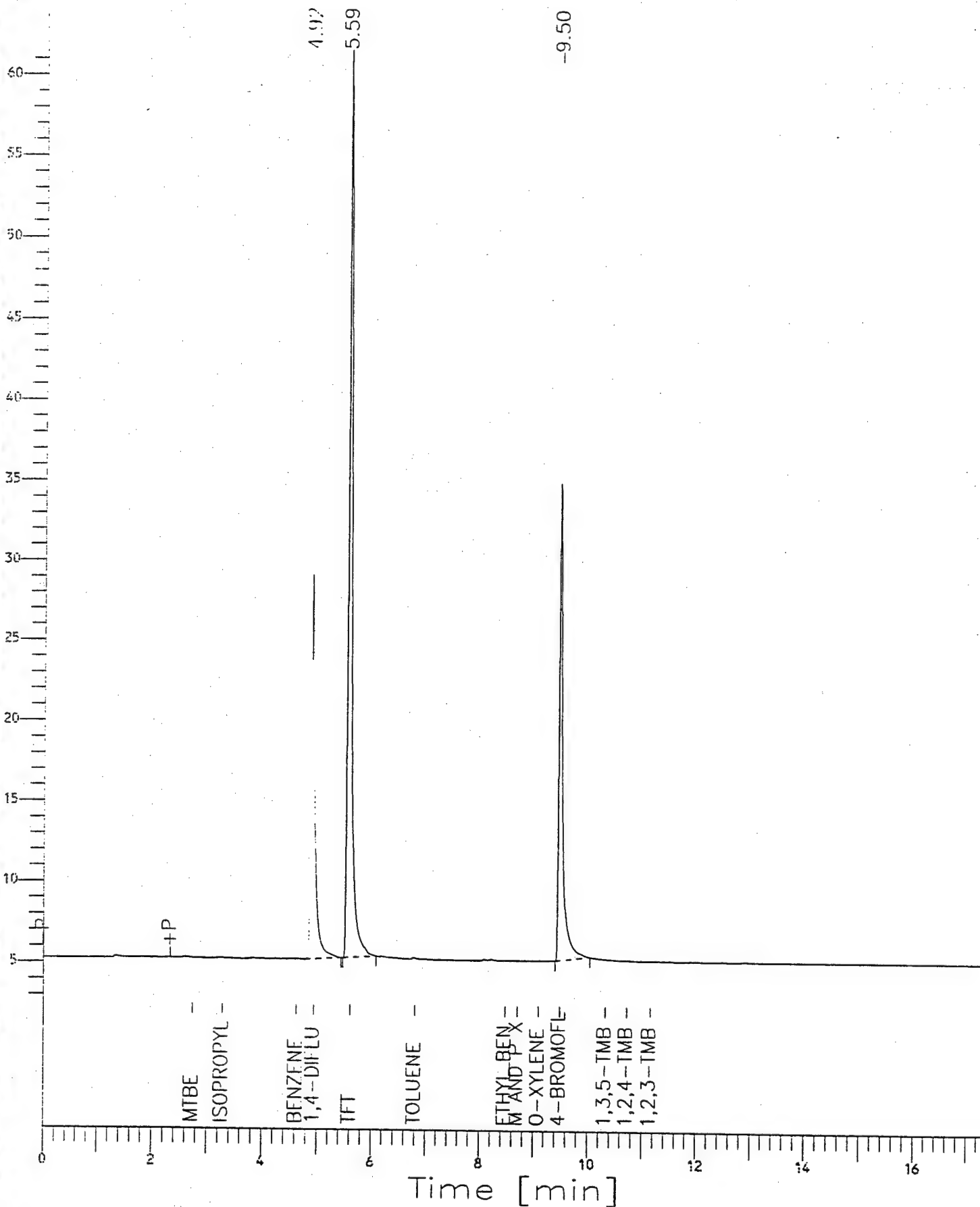
Time of Injection: 05/27/95 03:57

Low Point : 2.47 mV

Plot Scale: 59 mV

Page 1 of 1

High Point : 61.07 mV





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-05

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003-MW-GW04

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 17:05:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
BENZENE	2600	5 P	µg/L	
TOLUENE	1300	5 P	µg/L	
ETHYLBENZENE	570	5 P	µg/L	
TOTAL XYLENE	1450	5 P	µg/L	
TOTAL BTEX	5920		µg/L	
Surrogate	% Recovery			
1,4-Difluorobenzene	147			
4-Bromofluorobenzene	119			
METHOD 5030/8020 ***				
Analyzed by: YN				
Date: 05/28/95				
Cadmium, Total	ND	0.005	mg/L	
METHOD 6010 ***				
Analyzed by: DQ				
Date: 06/05/95				
Chromium, Total	0.015	0.002	mg/L	
METHOD 7191 ***				
Analyzed by: WFL				
Date: 06/01/95				
Mercury, Total	ND	0.0004	mg/L	
METHOD 7470 ***				
Analyzed by: PB				
Date: 06/06/95				

(P) - Practical Quantitation Limit ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-05

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003-MW-GW04

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 17:05:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Nickel, Total METHOD 6010 *** Analyzed by: DQ Date: 06/05/95	0.03	0.02	mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/24/95	05/24/95		
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 05/24/95	05/24/95		
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/31/95	0.005	0.004	mg/L

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-05

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003-MW-GW04

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 17:05:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	5	ug/L
Benzo(g,h,i)Perylene	ND	25	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	25	ug/L
2,6-Dinitrotoluene	ND	5	ug/L
	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



## HOUSTON LABORATORY

8880 INTERCHANGE DRIVE

HOUSTON, TEXAS 77054

PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-05

Operational Tech

SAMPLE ID: 025-003-MW-GW04

ANALYTICAL DATA (continued)			
PARAMETER	RESULTS	PQL*	UNITS
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	11	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	9	5	ug/L
Naphthalene	75	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	15	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505767-05

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 025-003-MW-GW04

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	83	35	114
2-Fluorobiphenyl	50 ug/L	90	43	116
Terphenyl-d14	50 ug/L	49	33	141
Phenol-d5	75 ug/L	65	10	110
2-Fluorophenol	75 ug/L	36	21	110
2,4,6-Tribromophenol	75 ug/L	121	10	123

ANALYZED BY: LH

DATE/TIME: 05/31/95 16:22:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-05

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003-MW-GW04

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 17:05:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	25	µg/L
Chloromethane	ND	25	µg/L
Vinyl chloride	ND	25	µg/L
Bromomethane	ND	25	µg/L
Chloroethane	ND	25	µg/L
Trichlorofluoromethane	ND	25	µg/L
1,1-Dichloroethene	ND	25	µg/L
Methylene chloride	30	25	µg/L
Trans-1,2-Dichloroethene	ND	25	µg/L
1,1-Dichloroethane	ND	25	µg/L
Chloroform	ND	25	µg/L
1,1,1-Trichloroethane	ND	25	µg/L
Carbon tetrachloride	ND	25	µg/L
1,2-Dichloroethane	ND	25	µg/L
2-Chloroethylvinyl ether	ND	25	µg/L
Trichloroethene	ND	25	µg/L
1,2-Dichloropropane	ND	25	µg/L
Bromodichloromethane	ND	25	µg/L
cis-1,3-Dichloropropene	ND	25	µg/L
trans-1,3-Dichloropropene	ND	25	µg/L
1,1,2-Trichloroethane	ND	25	µg/L
Tetrachloroethene	ND	25	µg/L
Dibromochloromethane	ND	25	µg/L
Chlorobenzene	ND	25	µg/L
Bromoform	ND	25	µg/L
1,1,2,2-Tetrachloroethane	ND	25	µg/L
1,3-Dichlorobenzene	ND	25	µg/L
1,4-Dichlorobenzene	ND	25	µg/L
1,2-Dichlorobenzene	ND	25	µg/L

METHOD: 8010, Halogenated Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-05

Operational Tech

SAMPLE ID: 025-003-MW-GW04

SURROGATES  
1-Chloro-2-Fluorobenzene

% RECOVERY  
96

ANALYZED BY: JZL

DATE/TIME: 05/26/95 07:43:00

METHOD: 8010, Halogenated Volatile Organics

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

Report Date: 31-May-1995 16:48

## SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151s01.d

Lab Smp Id:

Inj Date : 31-MAY-1995 16:22

Operator : LH

Inst ID: h.i

Smp Info : 9505767-05B-8270W/1X

Misc Info : E142C1/J142B01/H151IC6

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:24 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 1

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
5 Phenol	94.00	3.556	3.545	(0.935)	389596	31	15 (Q)
16 2-Methylphenol	108.00	4.065	4.054	(1.069)	49205	6	3 (aH)
19 4-Methylphenol	108.00	4.196	4.185	(1.103)	135719	18	9
33 Naphthalene	128.00	5.002	4.990	(1.005)	2439907	150	75
37 2-Methylnaphthalene	142.00	5.677	5.666	(1.140)	221457	23	11
* 11 1,4-Dichlorobenzene-d4	152.00	3.805	3.805	(1.000)	212256	40	
* 32 Naphthalene-d8	136.00	4.978	4.979	(1.000)	613403	40	
* 48 Acenaphthene-d10	164.00	6.732	6.721	(1.000)	208505	40	
* 65 Phenanthrene-d10	188.00	8.201	8.202	(1.000)	219170	40	
* 76 Chrysene-d12	240.00	10.915	10.916	(1.000)	132755	40	
* 83 Perylene-d12	264.00	12.787	12.788	(1.000)	102867	40	
\$ 23 Nitrobenzene-d5	82.00	4.314	4.315	(0.867)	609600	83	41
\$ 41 2-Fluorobiphenyl	172.00	6.056	6.057	(0.900)	577831	90	45
\$ 72 Terphenyl-d14	244.00	9.848	9.849	(0.902)	163376	49	24
\$ 4 Phenol-d5	99.00	3.556	3.533	(0.935)	1081927	98	49
\$ 3 2-Fluorophenol	112.00	2.845	2.822	(0.748)	469020	54	27
\$ 61 2,4,6-Tribromophenol	329.70	7.538	7.538	(0.919)	98964	180	91

## QC Flag Legend

- a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.
- H - Operator selected an alternate compound hit.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151s01.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: E142C1/J142B01/H151IC6

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	212256	85.74
32 Naphthalene-d8	440783	220392	881566	613403	39.16
48 Acenaphthene-d10	201424	100712	402848	208505	3.52
65 Phenanthrene-d10	261616	130808	523232	219170	-16.22
76 Chrysene-d12	195160	97580	390320	132755	-31.98
83 Perylene-d12	123342	61671	246684	102867	-16.60

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.02
32 Naphthalene-d8	4.98	4.48	5.48	4.98	-0.01
48 Acenaphthene-d10	6.72	6.22	7.22	6.73	0.17
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	-0.01
76 Chrysene-d12	10.92	10.42	11.42	10.91	-0.01
83 Perylene-d12	12.79	12.29	13.29	12.79	-0.01

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h151s01.d  
Date : 31-MAY-1995 16:22

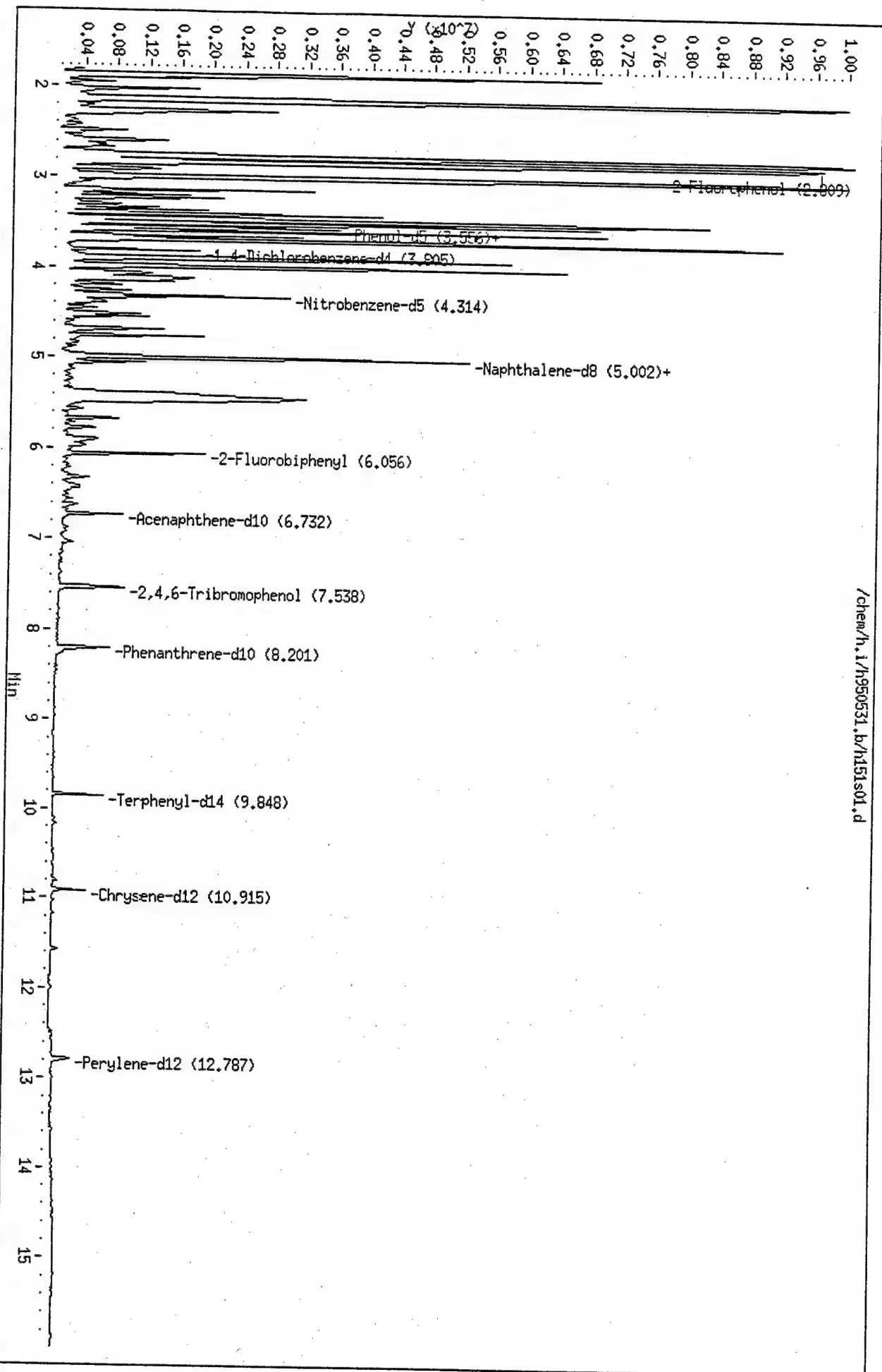
Client ID:

Sample Info: 9505767-05B-8270W/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.i

Operator: LH

Column diameter: 0.25



Date : 31-MAY-1995 16:22

Client ID:

Instrument: h.i

Sample Info: 9505767-05B-8270W/1X

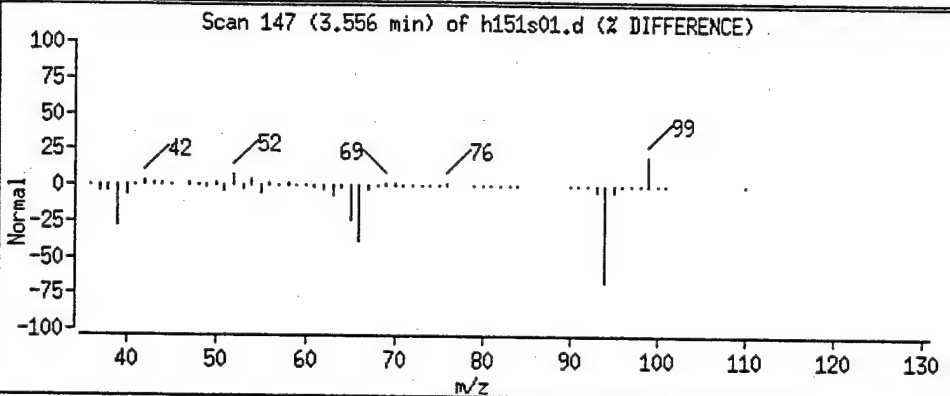
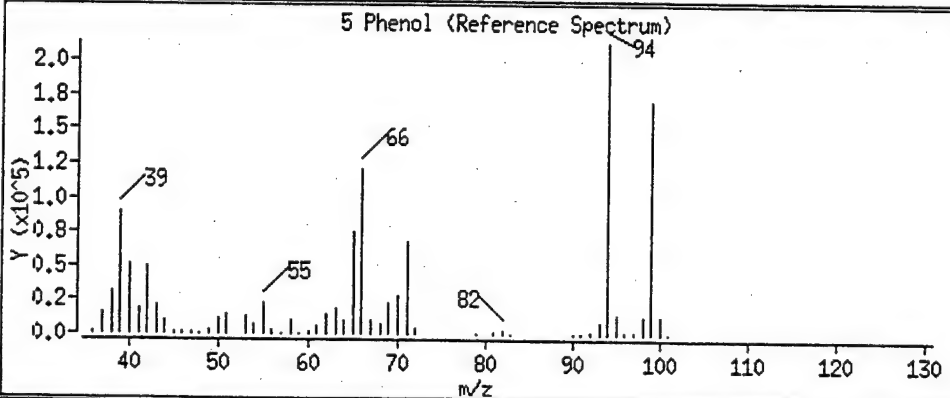
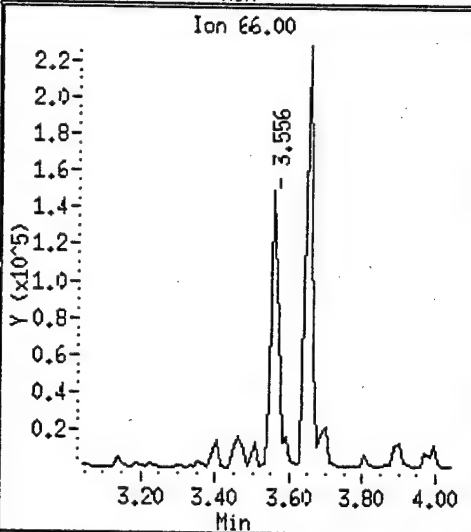
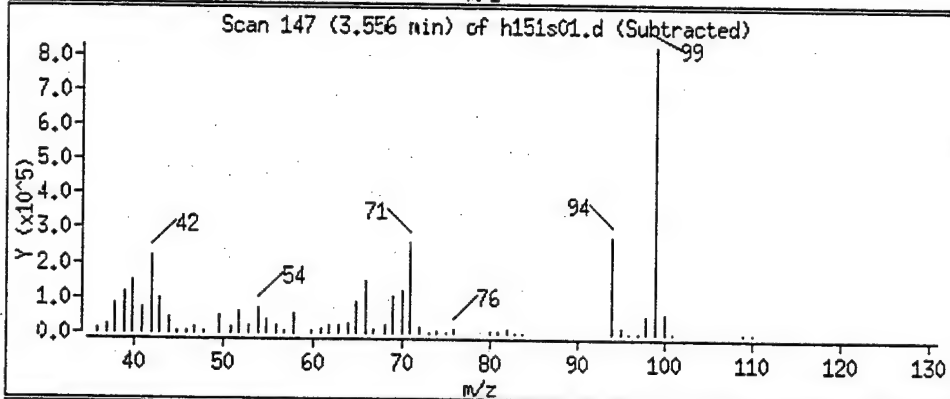
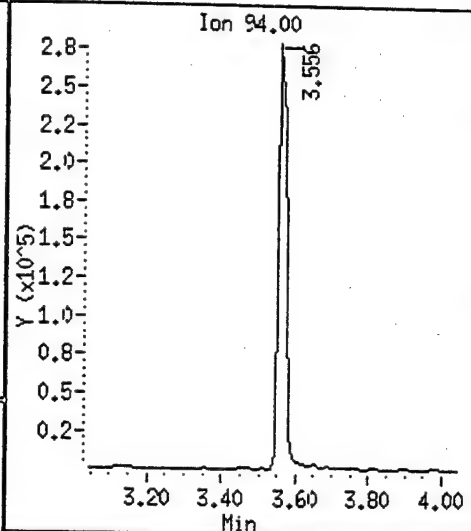
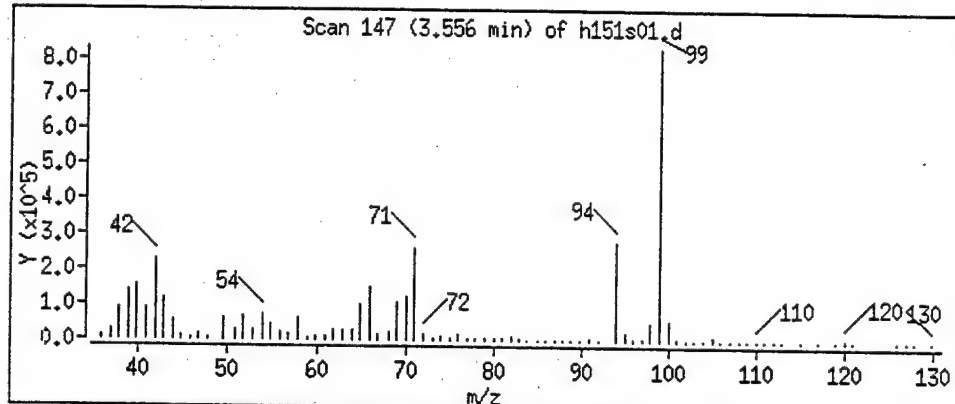
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

5 Phenol



Date: 31-MAY-1995 16:22

Client ID:

Instrument: h.i

Sample Info: 9505767-05B-8270W/1X

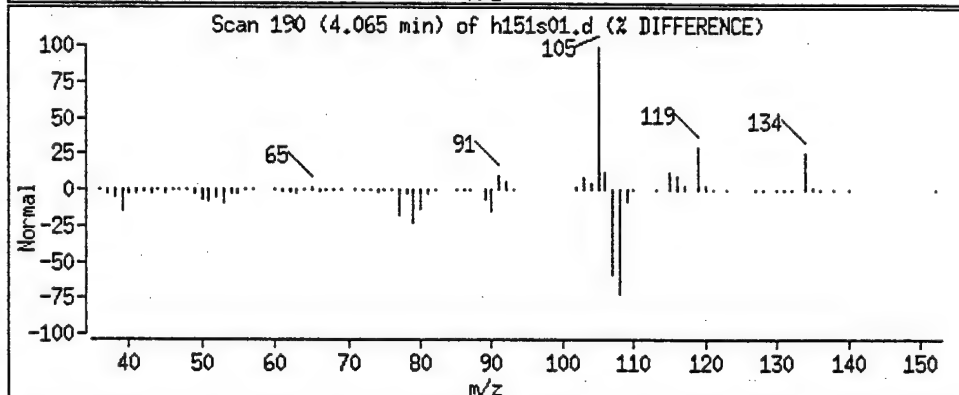
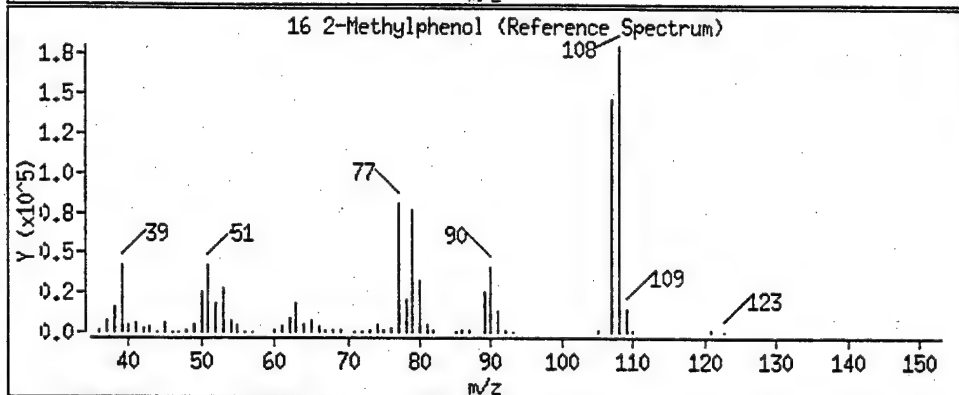
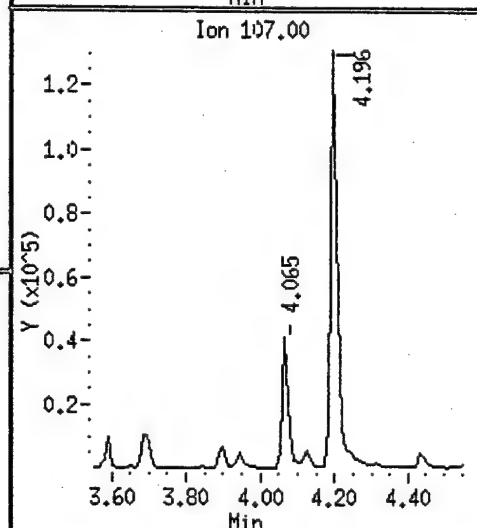
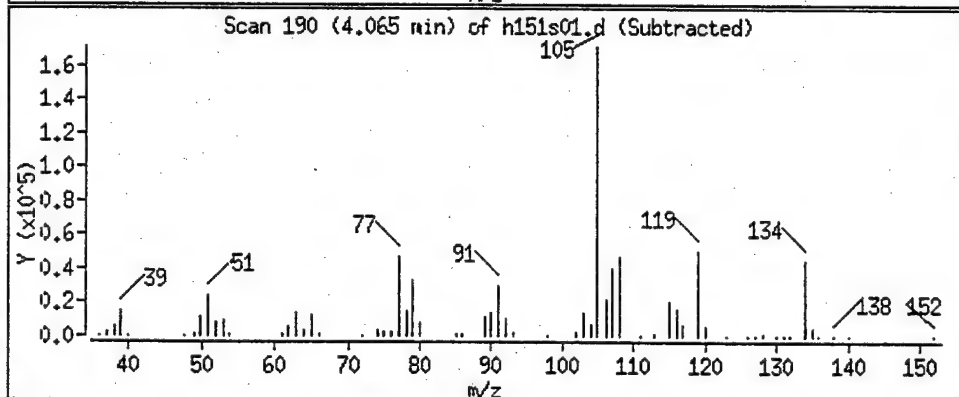
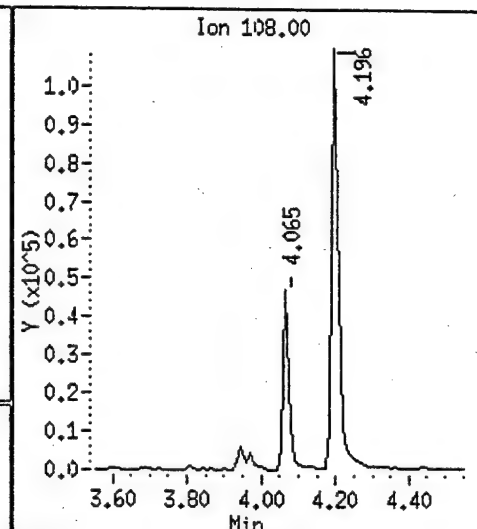
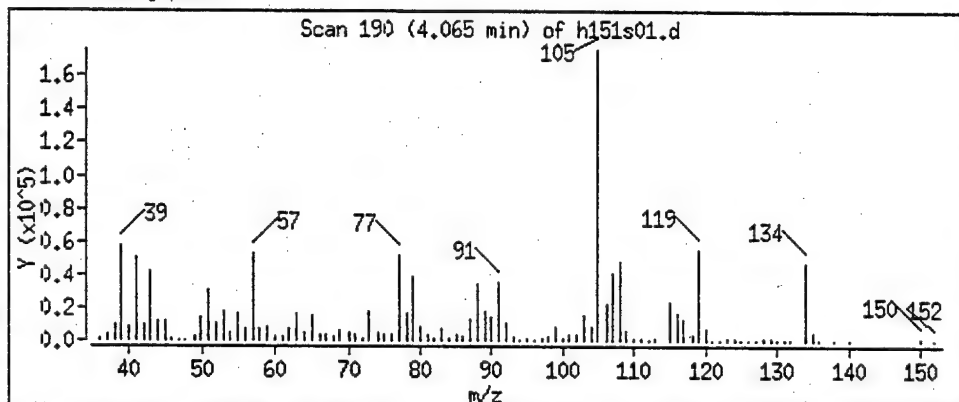
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

## 16 2-Methylphenol



Page 7

Client ID:

Instrument: h.i

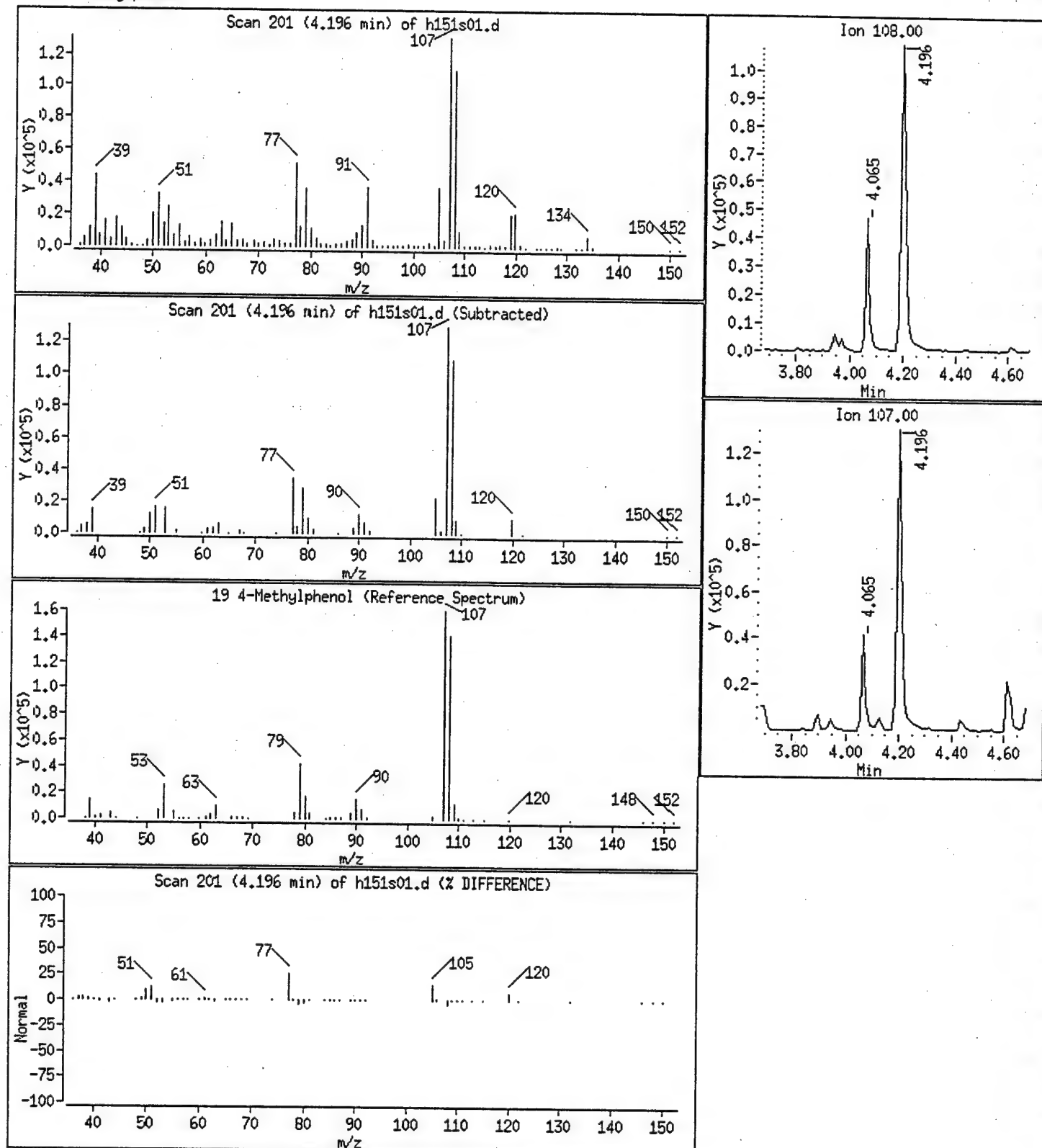
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

## 19 4-Methylphenol





Date : 31-MAY-1995 16:22

Client ID:

Instrument: h.i

Sample Info: 9505767-05B-8270W/1X

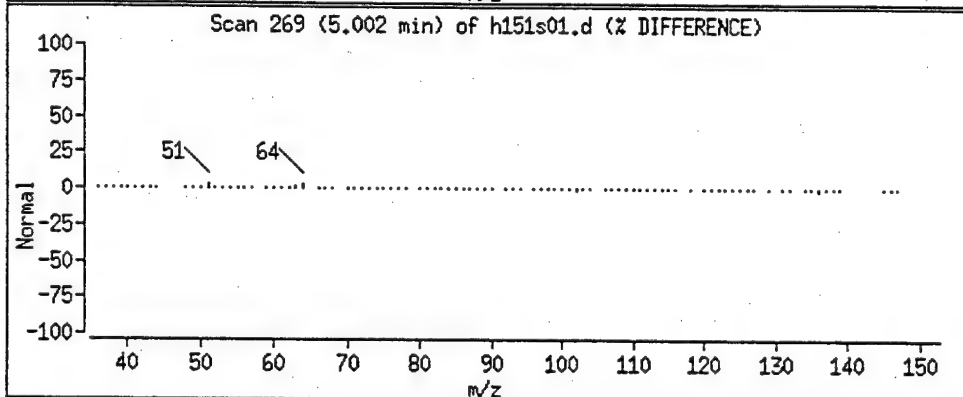
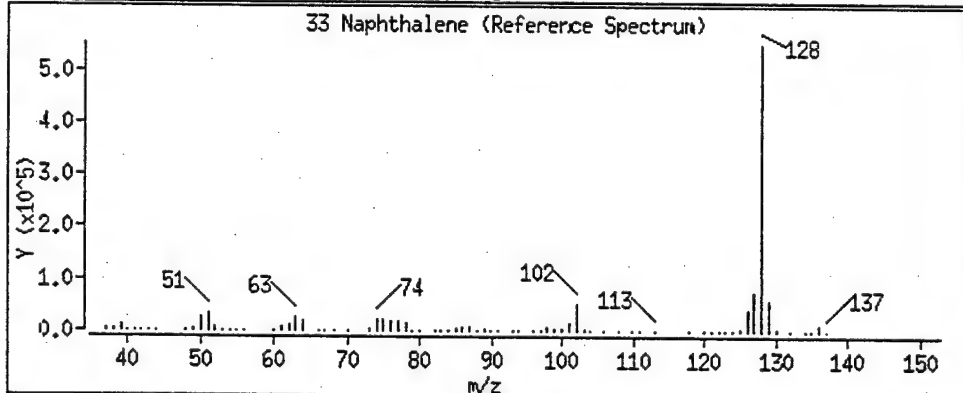
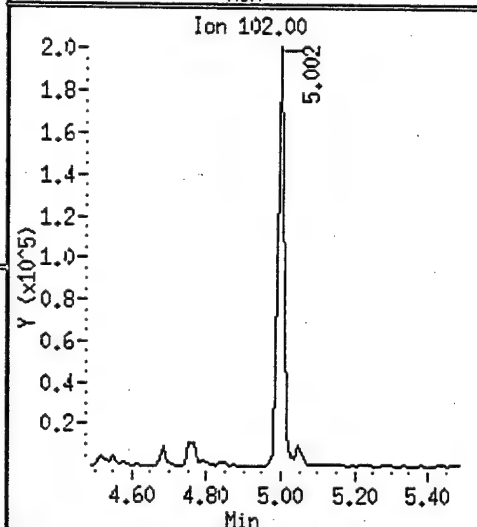
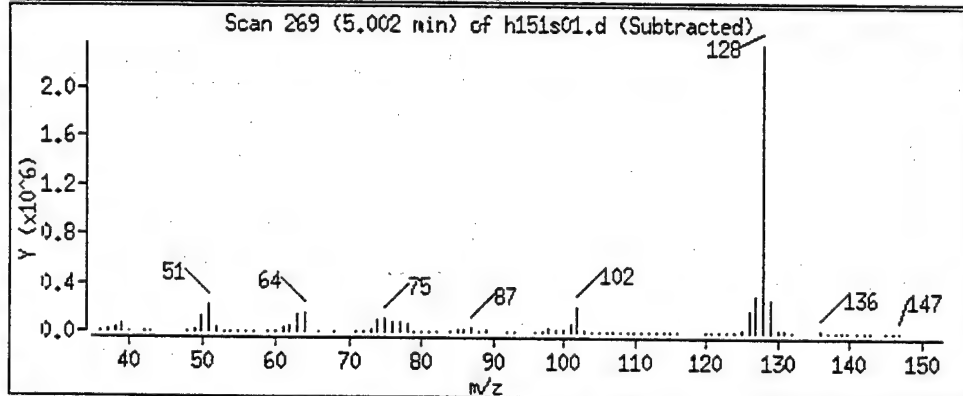
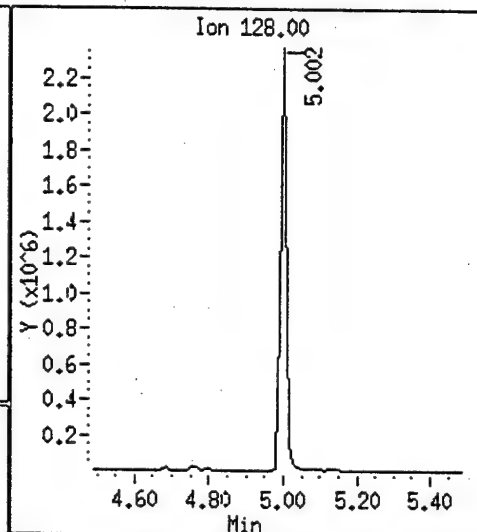
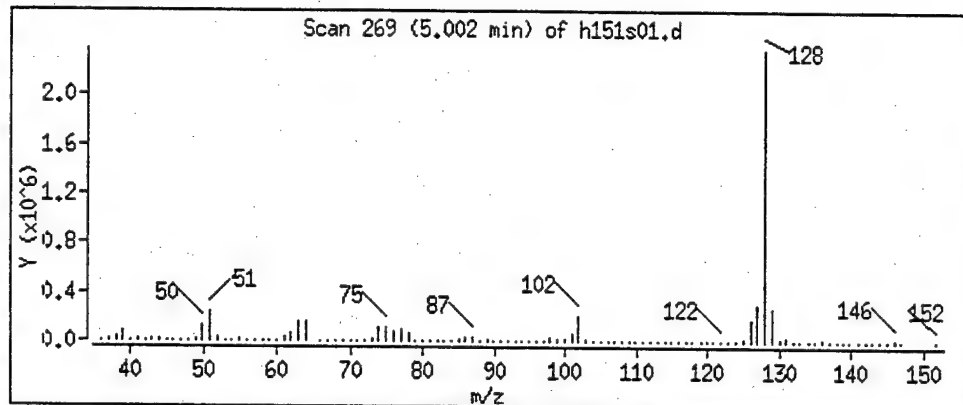
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

## 33 Naphthalene



Date: 31-MAY-1995 16:22

Client ID:

Instrument: h.i

Sample Info: 9505767-05B-8270W/1X

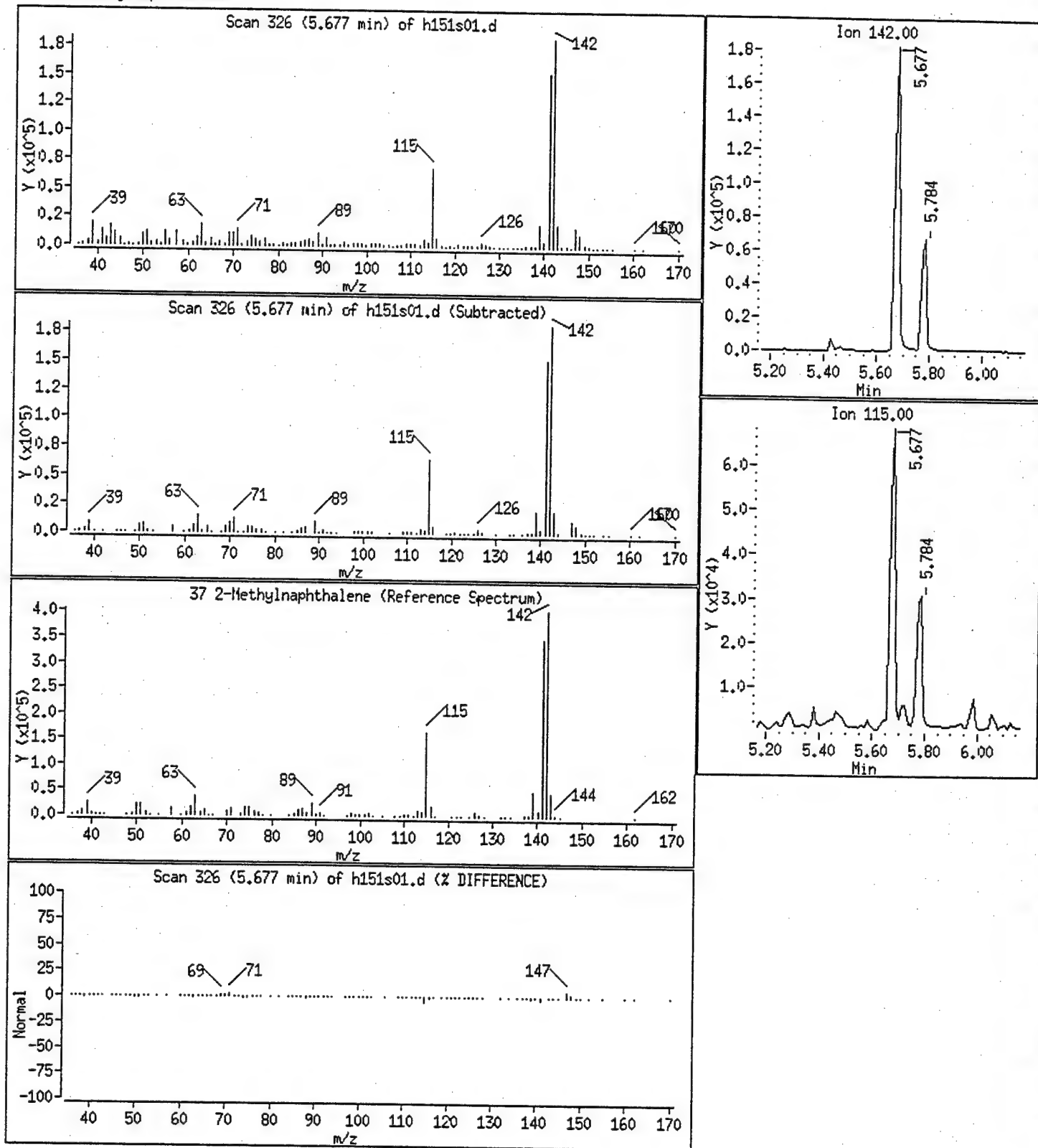
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

## 37 2-Methylnaphthalene



=====

Wave Version: 3.2 <16C20>

File Name : 9505767-05D      Time : 05/28/95 11:33

File Number: SC ;W;5      Study : BTEXW;1

File : YN

Instrument : HP\_J      Channel : A      A/D mV Range : 1000

Sampler : NONE

Gain : 0/0

Trace Serial # : 1092573380      Data Acquisition Time: 05/28/95 11:16

Run Time : 0.00 min.

Time : 17.33 min.

Sampling Rate : 2.0000 pts/sec

Data File : L:\data\tchrom\btex\varj\J\_\_407.raw

Alt File : L:\data\tchrom\btex\varj\J\_\_407.rst

Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins

File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc

File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp

Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

Volume : 2 ul      Area Reject : 300.00

Amount : 1.0000      Dilution Factor : 5.00

=====

BTEX Area Percent Report

=====

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.477	13323.50	2670.44	BB	1.0000e6	-----	0.0666		0.0133	0.0000
3.291	6485.35	758.11	BV	1294.1476	0.0236	25.0565	Isopropylether	5.0113	-0.0040
3.477	8008.50	1017.22	VV	1.0000e6	-----	0.0400		0.0080	0.0000
3.767	3820.57	568.77	VV	1.0000e6	-----	0.0191		0.0038	0.0000
4.030	2557.07	400.23	VB	1.0000e6	-----	0.0128		0.0026	0.0000
4.468	8797.85	1856.66	BV	1.0000e6	-----	0.0440		0.0088	0.0000
4.613	1336922.38	261706.09	VV	2590.5842	4.8674	2580.3491	Benzene	516.0698	-0.0287
4.921	165593.30	27867.56	VB	1128.9738	0.6029	733.3798	1,4-DIFLUOROBENZENE	146.6760	-0.0292
5.595	274671.75	58322.39	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0271
6.374	1923.50	294.13	BB	1.0000e6	-----	0.0096		0.0019	0.0000
6.793	624533.25	153484.38	BB	2384.2373	2.2737	1309.7129	Toluene	261.9426	-0.0197
8.474	203841.97	54547.08	BV	1783.7131	0.7421	571.3978	Ethyl_Benzene	114.2796	-0.0154
8.699	301541.28	76331.87	VB	1898.9424	1.0978	793.9716	m and p Xylene	158.7943	-0.0130
9.092	240752.00	65403.32	BB	1815.0874	0.8765	663.1967	o-Xylene	132.6393	-0.0142
9.491	176422.34	42775.94	BV	1485.7947	0.6423	593.6969	4-BROMOFLUOROBENZENE	118.7394	-0.0115
9.965	9268.97	2635.84	VV	1.0000e6	-----	0.0463		0.0093	0.0000
10.118	43885.27	7974.86	VV	1.0000e6	-----	0.2194		0.0439	0.0000
10.323	22190.70	6503.70	VV	1714.7459	0.0808	64.7055	1,3,5-TMB	12.9411	-0.0180
10.421	23339.95	5956.28	VB	1.0000e6	-----	0.1167		0.0233	0.0000
10.716	66460.38	17439.16	BV	1518.5447	0.2420	218.8292	1,2,4-TMB	43.7658	-0.0179
11.145	13935.50	4154.58	VV	1456.5742	0.0507	47.8366	1,2,3-TMB	9.5673	-0.0169
11.264	22093.50	5052.95	VE	1.0000e6	-----	0.1105		0.0221	0.0000
11.542	2170.50	404.76	EB	9.9999e5	-----	0.0109		0.0022	0.0000
11.959	4834.50	771.18	BB	1.0000e6	-----	0.0242		0.0048	0.0000
12.736	343.06	108.40	BV	9.9999e5	-----	0.0017		0.0003	0.0000
12.880	863.95	203.40	VB	1.0000e6	-----	0.0043		0.0009	0.0000
13.487	882.25	168.89	BB	1.0000e6	-----	0.0044		0.0009	0.0000
3579463.25		799378.00				7602.8633		1520.5728	-0.2156

Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_407.TX0

## Chromatogram

Sample Name : 9505767-050

File Name : l:\data\tchrom\btex\varj\J\_407.raw

Method : HP J.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 17.33 min

Plot Offset: -8 mV

Sample #: SC ;W;5

Date : 05/28/95 11:33

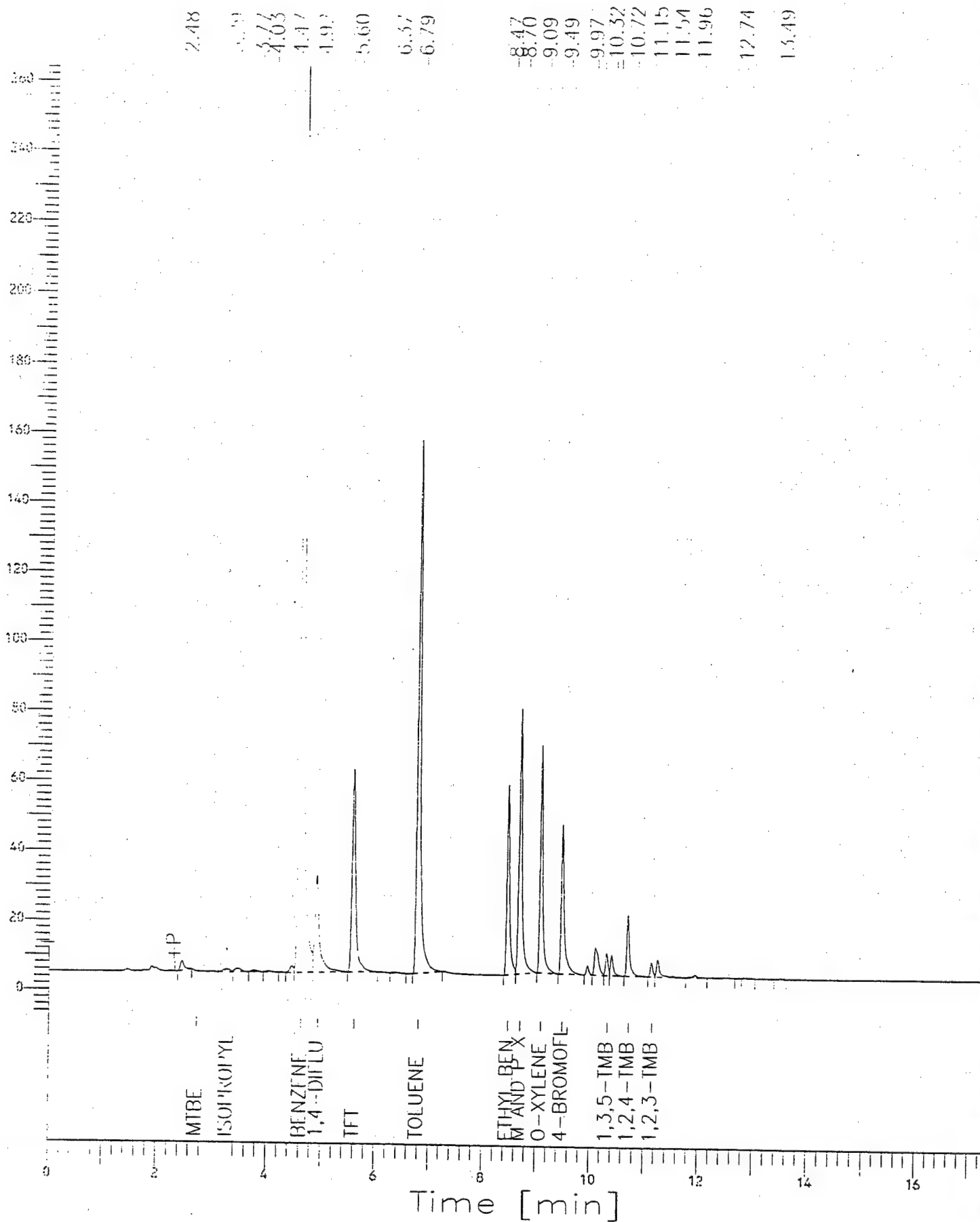
Time of Injection: 05/28/95 11:16

Low Point : -7.75 mV

Plot Scale: 273 mV

Page 1 of 1

High Point : 265.31 mV





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-06

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003A-GW01

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 17:15:00  
DATE RECEIVED: 05/20/95

PARAMETER	ANALYTICAL DATA		DETECTION LIMIT	UNITS
	RESULTS			
BENZENE	2300		5 P	µg/L
TOLUENE	1300		5 P	µg/L
ETHYLBENZENE	540		5 P	µg/L
TOTAL XYLENE	1390		5 P	µg/L
TOTAL BTEX	5530			µg/L

Surrogate

% Recovery

1,4-Difluorobenzene  
4-Bromofluorobenzene

140  
120

METHOD 5030/8020 \*\*\*

Analyzed by: YN

Date: 05/28/95

Cadmium, Total

ND

0.005

mg/L

METHOD 6010 \*\*\*

Analyzed by: DQ

Date: 06/05/95

Chromium, Total

0.019

0.002

mg/L

METHOD 7191 \*\*\*

Analyzed by: WFL

Date: 06/01/95

Mercury, Total

ND

0.0004

mg/L

METHOD 7470 \*\*\*

Analyzed by: PB

Date: 06/06/95

(P) - Practical Quantitation Limit ND - Not detected.

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-06

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HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

DATE: 06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003A-GW01

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 17:15:00  
DATE RECEIVED: 05/20/95

PARAMETER	ANALYTICAL DATA			UNITS
	RESULTS	DETECTION LIMIT		
Nickel, Total METHOD 6010 *** Analyzed by: DQ Date: 06/05/95	0.04	0.02		mg/L
Acid Digestion-Aqueous, ICP METHOD 3010 *** Analyzed by: AM Date: 05/24/95	05/24/95			
Acid Digestion-Aqueous, GF METHOD 3020 *** Analyzed by: AM Date: 05/24/95	05/24/95			
Lead, Total METHOD 7421 *** Analyzed by: WFL Date: 05/31/95	0.007	0.004		mg/L

Notes: \*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA  
\*\*Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.  
\*\*\*Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-06

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San Antonio, TX 78229  
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06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003A-GW01

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 17:15:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	25	ug/L
Benzo(g,h,i)Perylene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)



Certificate of Analysis No. H9-9505767-06

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech

SAMPLE ID: 025-003A-GW01

PARAMETER	ANALYTICAL DATA (continued)		UNITS
	RESULTS	PQL*	
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl) Phthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd) Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	8	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	8	5	ug/L
Naphthalene	51	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine (1)	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	12	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water  
(continued on next page)





HOUSTON LABORATORY  
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PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-06

Operational Tech

SAMPLE ID: 025-003A-GW01

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	80	35	114
2-Fluorobiphenyl	50 ug/L	76	43	116
Terphenyl-d14	50 ug/L	30 «	33	141
Phenol-d5	75 ug/L	72	10	110
2-Fluorophenol	75 ug/L	63	21	110
2,4,6-Tribromophenol	75 ug/L	103	10	123

ANALYZED BY: LH

DATE/TIME: 05/31/95 16:44:00

EXTRACTED BY: RS

DATE/TIME: 05/22/95

METHOD: 8270, Semivolatile Organics - Water

NOTES: \* - Practical Quantitation Limit ND - Not Detected

NA - Not Analyzed

« - Recovery outside of control limits.

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.



Certificate of Analysis No. H9-9505767-06

HOUSTON LABORATORY

8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Operational Tech  
4100 N.W. Loop 410 Ste. 230  
San Antonio, TX 78229  
ATTN: Kathryn Pritchett

06/08/95

PROJECT: Duluth ANG/Duluth SI  
SITE: Site 25  
SAMPLED BY: Operational Technology  
SAMPLE ID: 025-003A-GW01

PROJECT NO: 1315-197  
MATRIX: WATER  
DATE SAMPLED: 05/19/95 17:15:00  
DATE RECEIVED: 05/20/95

ANALYTICAL DATA			
PARAMETER	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	25	µg/L
Chloromethane	ND	25	µg/L
Vinyl chloride	ND	25	µg/L
Bromomethane	ND	25	µg/L
Chloroethane	ND	25	µg/L
Trichlorofluoromethane	ND	25	µg/L
1,1-Dichloroethene	ND	25	µg/L
Methylene chloride	ND	25	µg/L
Trans-1,2-Dichloroethene	ND	25	µg/L
1,1-Dichloroethane	ND	25	µg/L
Chloroform	ND	25	µg/L
1,1,1-Trichloroethane	ND	25	µg/L
Carbon tetrachloride	ND	25	µg/L
1,2-Dichloroethane	ND	25	µg/L
2-Chloroethylvinyl ether	ND	25	µg/L
Trichloroethene	ND	25	µg/L
1,2-Dichloropropane	ND	25	µg/L
Bromodichloromethane	ND	25	µg/L
cis-1,3-Dichloropropene	ND	25	µg/L
trans-1,3-Dichloropropene	ND	25	µg/L
1,1,2-Trichloroethane	ND	25	µg/L
Tetrachloroethene	ND	25	µg/L
Dibromochloromethane	ND	25	µg/L
Chlorobenzene	ND	25	µg/L
Bromoform	ND	25	µg/L
1,1,2,2-Tetrachloroethane	ND	25	µg/L
1,3-Dichlorobenzene	ND	25	µg/L
1,4-Dichlorobenzene	ND	25	µg/L
1,2-Dichlorobenzene	ND	25	µg/L

METHOD: 8010, Halogenated Volatile Organics  
(continued on next page)



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9505767-06

Operational Tech

SAMPLE ID: 025-003A-GW01

SURROGATES  
1-Chloro-2-Fluorobenzene

% RECOVERY  
99

ANALYZED BY: JZL

DATE/TIME: 05/26/95 06:32:00

METHOD: 8010, Halogenated Volatile Organics

NOTES: \* - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance  
with EPA guidelines for quality assurance.

SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151s02.d

Lab Smp Id:

Inj Date : 31-MAY-1995 16:44

Operator : LH

Inst ID: h.i

Smp Info : 9505767-06B-8270W/1X

Misc Info : E142C1/J142B01/H151IC6

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:24 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8270.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
5 Phenol	94.00	3.553	3.545	(0.935)	157693	23	12 (Q)
19 4-Methylphenol	108.00	4.193	4.185	(1.103)	66796	16	8
33 Naphthalene	128.00	4.999	4.990	(1.005)	1125343	100	51
37 2-Methylnaphthalene	142.00	5.674	5.666	(1.141)	108728	16	8
* 11 1,4-Dichlorobenzene-d4	152.00	3.802	3.805	(1.000)	113345	40	
* 32 Naphthalene-d8	136.00	4.975	4.979	(1.000)	413469	40	
* 48 Acenaphthene-d10	164.00	6.729	6.721	(1.000)	192538	40	
* 65 Phenanthrene-d10	188.00	8.210	8.202	(1.000)	232520	40	
* 76 Chrysene-d12	240.00	10.912	10.916	(1.000)	135481	40	
* 83 Perylene-d12	264.00	12.784	12.788	(1.000)	116024	40	
\$ 23 Nitrobenzene-d5	82.00	4.311	4.315	(0.867)	398844	80	40
\$ 41 2-Fluorobiphenyl	172.00	6.065	6.057	(0.901)	449263	76	38
\$ 72 Terphenyl-d14	244.00	9.846	9.849	(0.902)	103109	30	15 (R)
\$ 4 Phenol-d5	99.00	3.541	3.533	(0.931)	639120	110	54
\$ 3 2-Fluorophenol	112.00	2.830	2.822	(0.744)	433825	94	47
\$ 61 2,4,6-Tribromophenol	329.70	7.535	7.538	(0.918)	89378	150	77

QC Flag Legend

Q - Qualifier signal failed the ratio test.  
R - Spike/Surrogate failed recovery limits.

Date : 31-MAY-1995 16:44

Client ID:

Instrument: h.i

Sample Info: 9505767-06B-8270W/1X

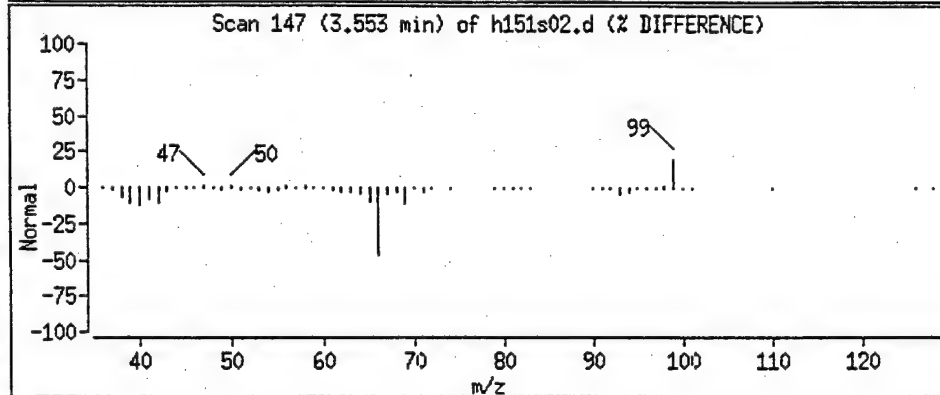
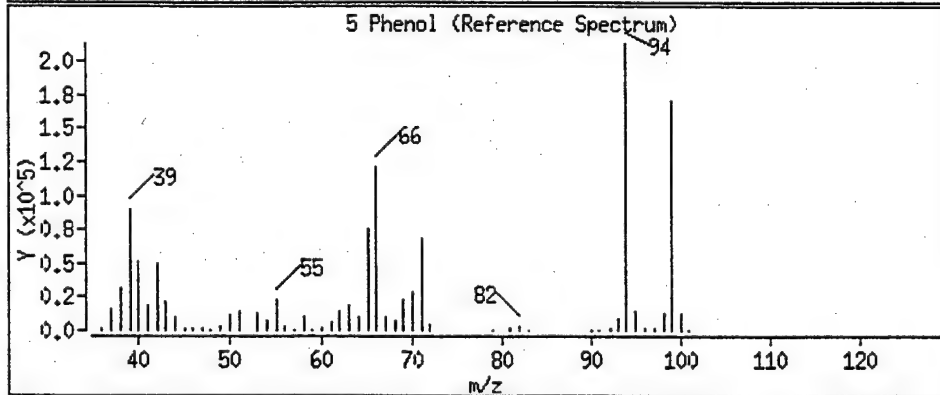
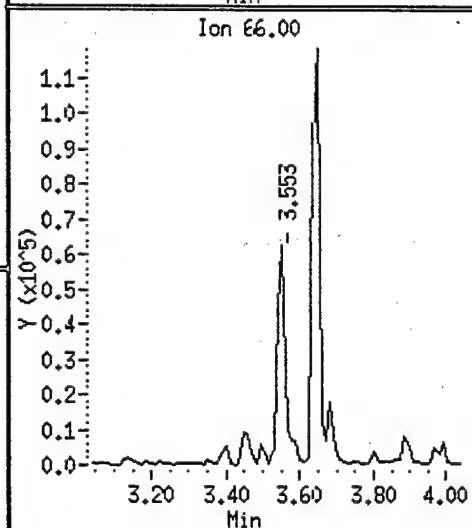
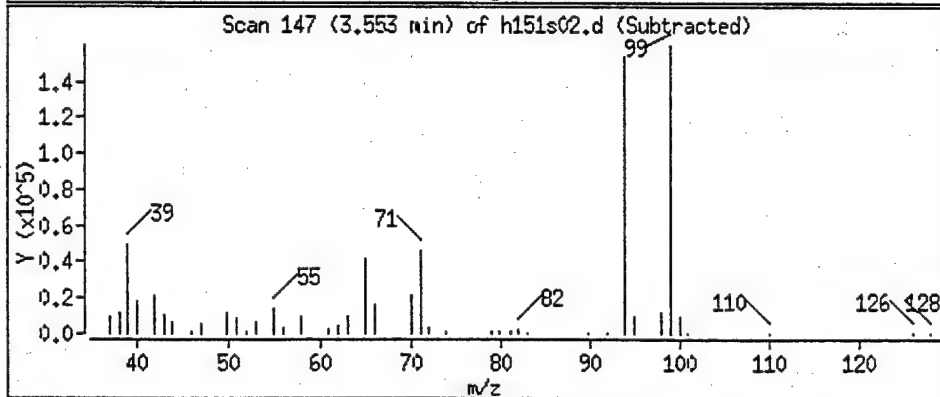
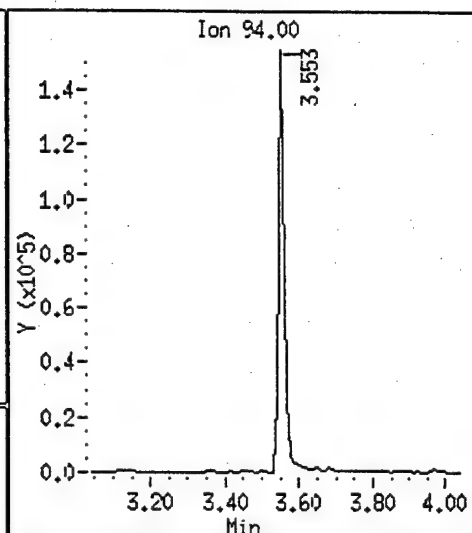
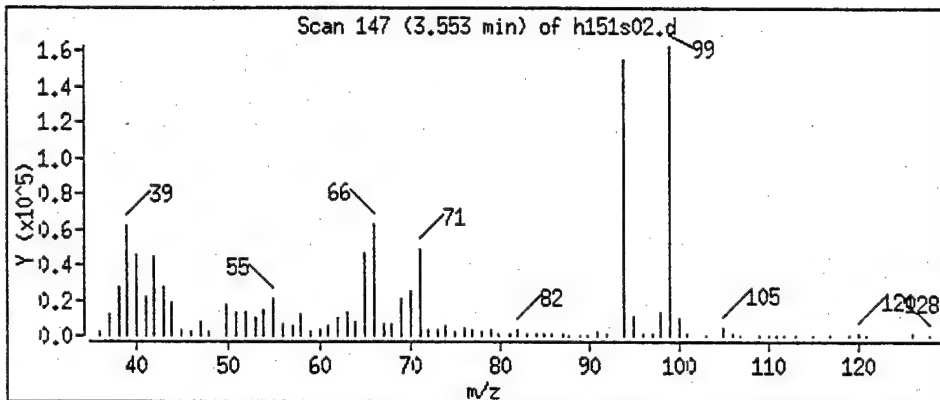
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

5 Phenol



Date: 31-MAY-1995 16:44

Client ID:

Instrument: h.i

Sample Info: 9505767-06B-8270W/1X

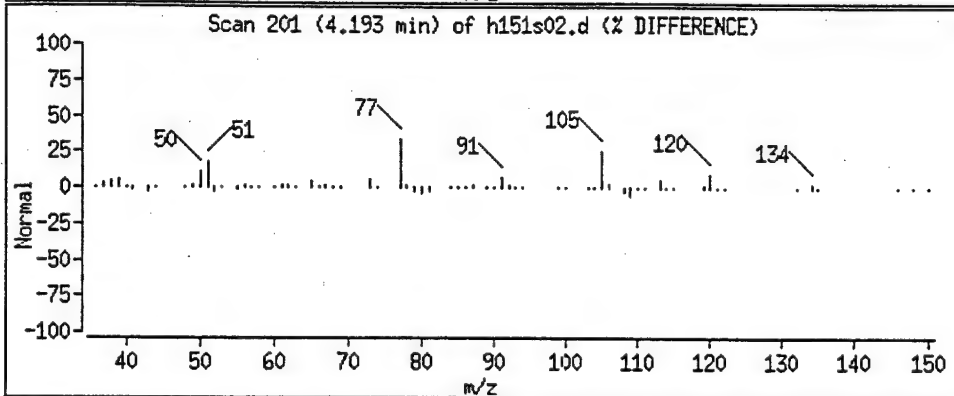
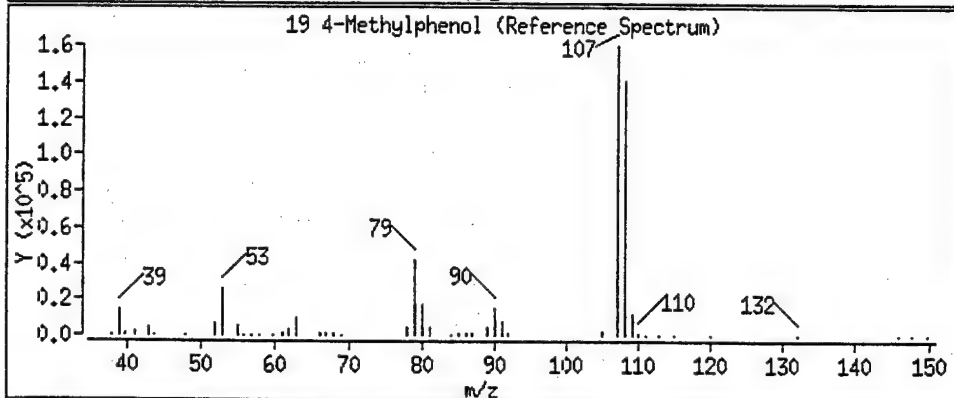
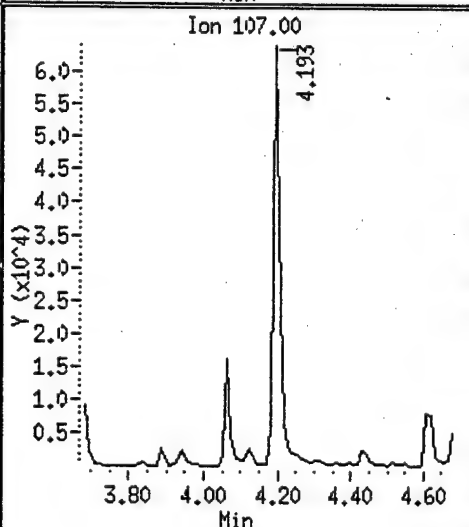
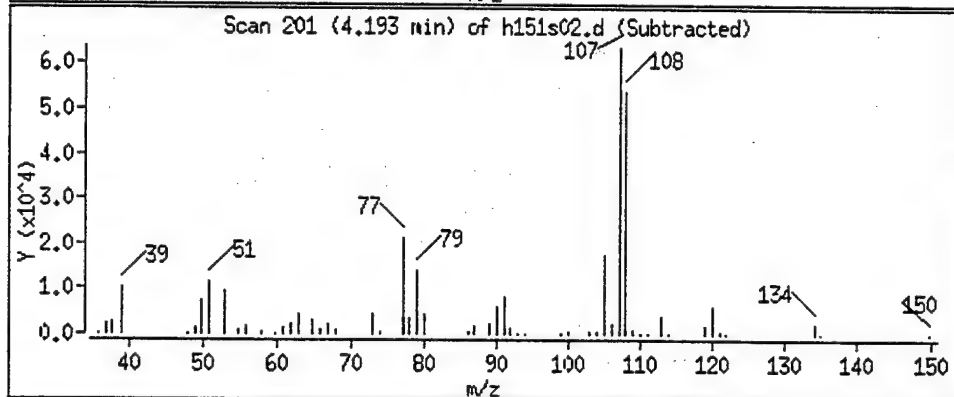
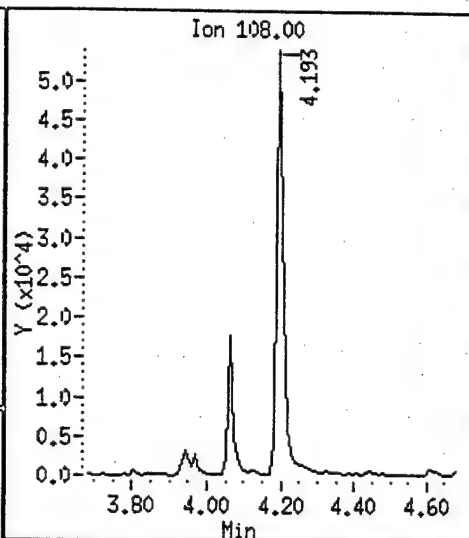
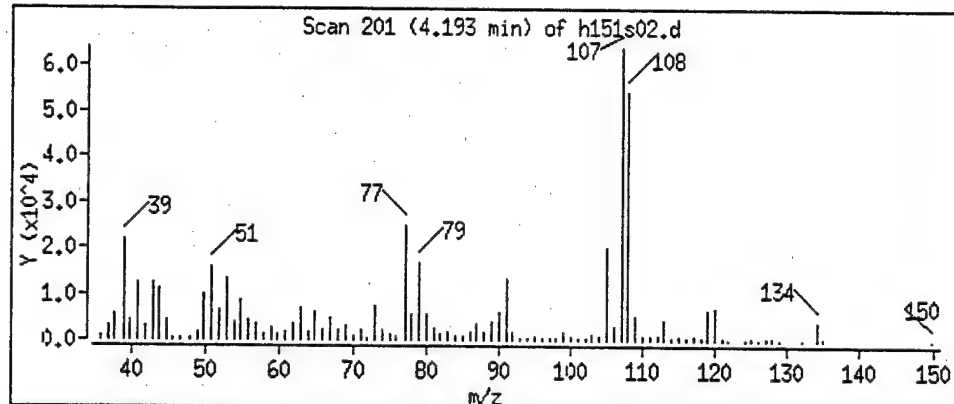
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

## 19 4-Methylphenol



Data File: /chem/h.i/h950531.b/h151s02.d

Page 7

Date : 31-MAY-1995 16:44

Client ID:

Instrument: h.i

Sample Info: 9505767-06B-8270W/1X

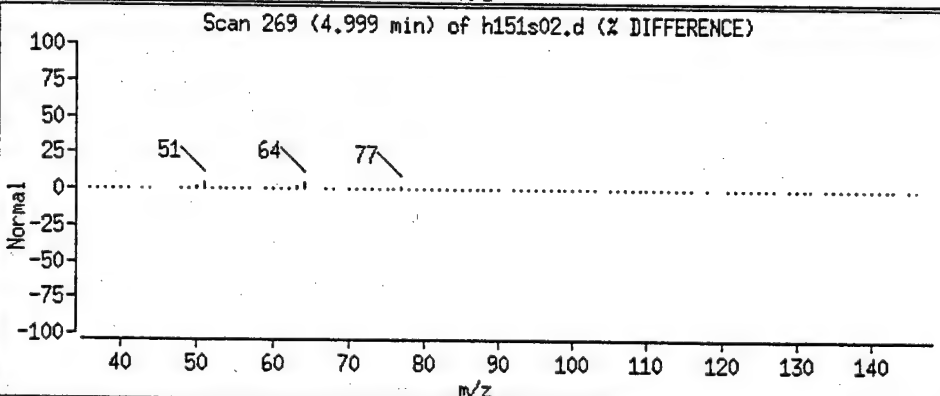
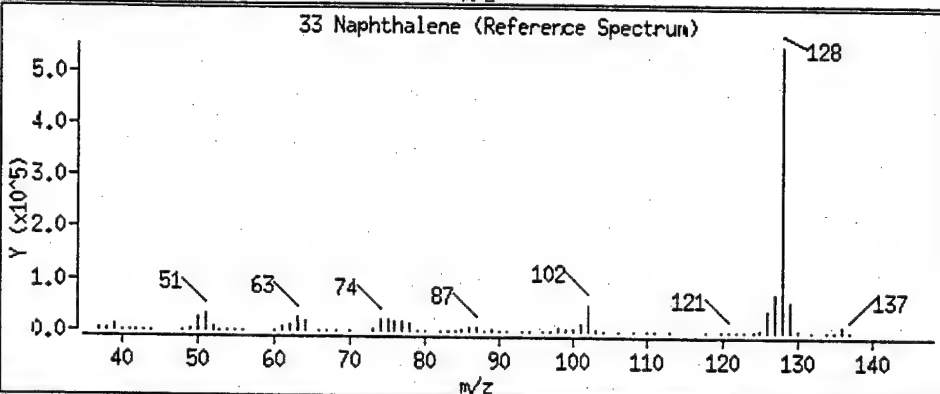
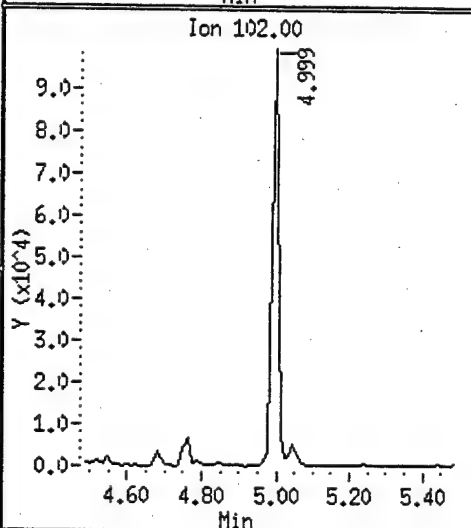
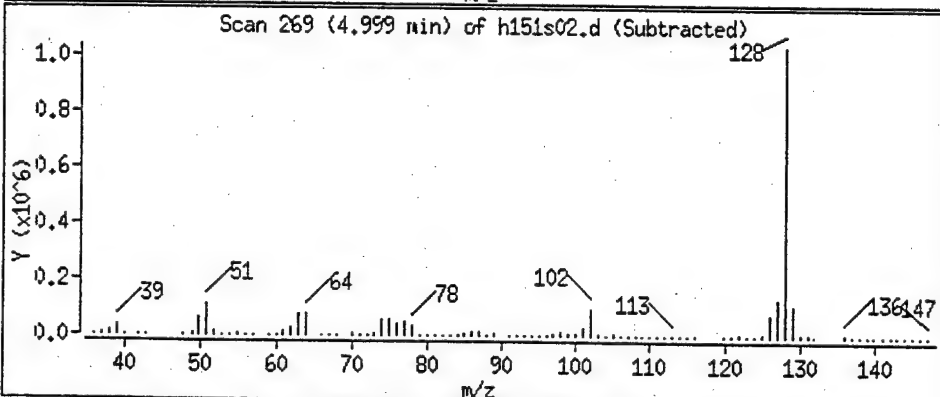
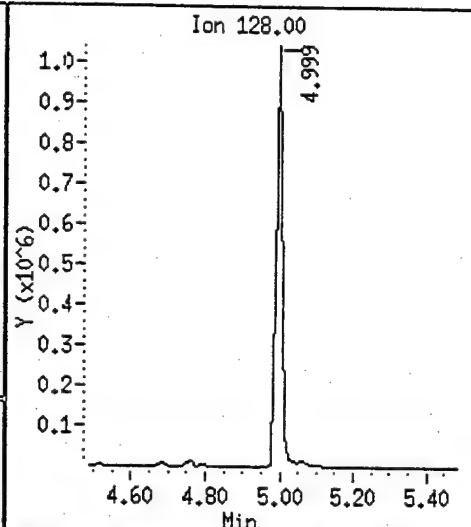
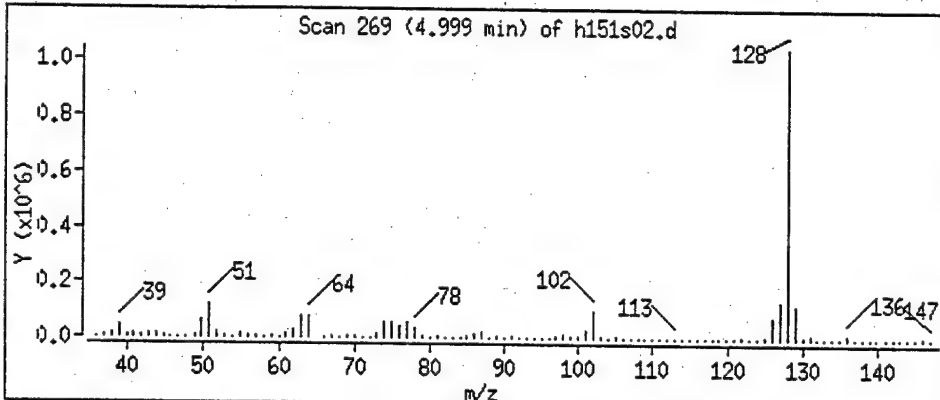
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

33 Naphthalene



Date : 31-MAY-1995 16:44

Client ID:

Instrument: h.i

Sample Info: 9505767-06B-8270W/1X

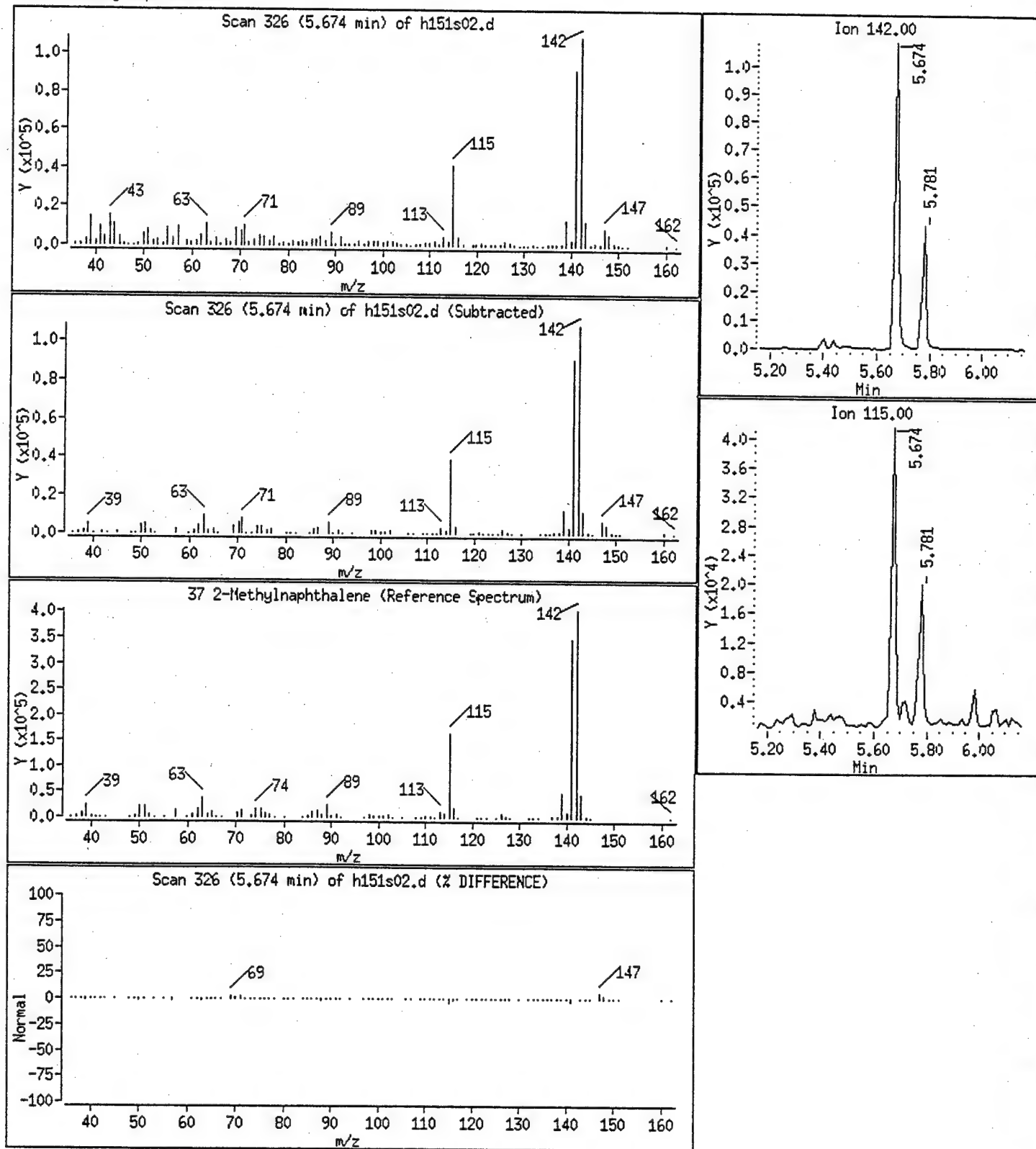
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 0.25

## 37 2-Methylnaphthalene





Software Version: 3.2 <16C20>  
 Sample Name : 9505767-06D Time : 05/28/95 04:35  
 Sample Number: SC ;W;5 Study : BTEXW;1  
 Operator : YN

Instrument : HP\_J Channel : A A/D mV Range : 1000  
 AutoSampler : NONE  
 Inlet/Vial : 0/0

Interface Serial # : 1092573380 Data Acquisition Time: 05/28/95 04:17  
 Delay Time : 0.00 min.  
 Run Time : 17.33 min.  
 Sampling Rate : 2.0000 pts/sec

Data File : L:\data\tchrom\btex\varj\J\_\_396.raw  
 Result File : L:\data\tchrom\btex\varj\J\_\_396.rst  
 Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
 Control File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc  
 Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
 Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

Injection Volume : 2 ul Area Reject : 300.00  
 Sample Amount : 1.0000 Dilution Factor : 5.00

# BTEX Area Percent Report

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.467	10513.00	2057.20	BB	1.0000e6	-----	0.0526		0.0105	0.0000
3.279	4473.92	521.90	BV	1267.9053	0.0166	17.6430	Isopropylether	3.5286	-0.0158
3.466	5350.38	705.95	VV	1.0000e6	-----	0.0268		0.0054	0.0000
3.759	2595.37	352.56	VV	1.0000e6	-----	0.0130		0.0026	0.0000
4.021	2212.08	361.09	VB	1.0000e6	-----	0.0111		0.0022	0.0000
4.605	1187786.88	237622.81	BV	2538.0532	4.4139	2339.9565	Benzene	467.9913	-0.0372
4.914	154380.66	26947.70	VB	1106.0806	0.5737	697.8726	1,4-DIFLUOROBENZENE	139.5745	-0.0361
5.589	269102.03	57964.61	BV	-----	1.0000	0.0000	TFT	0.0000	-0.0325
6.367	1897.46	263.82	VB	1.0000e6	-----	0.0095		0.0019	0.0000
6.789	603041.50	152894.95	BB	2335.8906	2.2409	1290.8171	Toluene	258.1634	-0.0237
8.470	187055.61	51828.21	BV	1747.5435	0.6951	535.1959	Ethyl_Benzene	107.0392	-0.0188
8.696	284046.38	75191.82	VB	1860.4362	1.0555	763.3865	m and p Xylene	152.6773	-0.0164
9.088	224720.50	63734.85	BB	1778.2815	0.8351	631.8474	o-Xylene	126.3695	-0.0177
9.487	174838.22	44479.22	BV	1455.6663	0.6497	600.5436	4-BROMOFLUOROBENZENE	120.1087	-0.0154
9.960	8507.03	2418.11	VV	1.0000e6	-----	0.0425		0.0085	0.0000
10.113	40066.51	7511.20	VV	1.0000e6	-----	0.2003		0.0401	0.0000
10.319	19408.32	5920.17	VV	1679.9746	0.0721	57.7637	1,3,5-TMB	11.5528	-0.0224
10.416	20374.68	5365.42	VB	1.0000e6	-----	0.1019		0.0204	0.0000
10.711	59853.50	16558.93	BB	1487.7522	0.2224	201.1541	1,2,4-TMB	40.2308	-0.0231
11.140	12689.20	3842.63	BV	1427.0382	0.0472	44.4599	1,2,3-TMB	8.8920	-0.0218
11.259	19434.88	4751.64	VE	1.0000e6	-----	0.0972		0.0194	0.0000
11.538	1633.00	322.47	EB	1.0000e6	-----	0.0082		0.0016	0.0000
11.954	4144.50	676.90	BB	1.0000e6	-----	0.0207		0.0041	0.0000
12.534	963.01	137.28	BB	1.0000e6	-----	0.0048		0.0010	0.0000
12.874	850.75	191.48	BB	1.0000e6	-----	0.0043		0.0009	0.0000
13.480	813.50	167.96	BB	1.0000e6	-----	0.0041		0.0008	0.0000
3300752.75		762790.75				7181.2373		1436.2474	-0.2808

Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_396.TX0

# Chromatogram

File Name : 9505767-060

Name : l:\data\tchrom\btex\varj\J\_396.raw

Mod : HP\_J.ins

Start Time : 0.00 min

Gain Factor: 1

End Time : 17.33 min

Plot Offset: -7 mV

Sample #: SC ;W;5

Date : 05/28/95 04:35

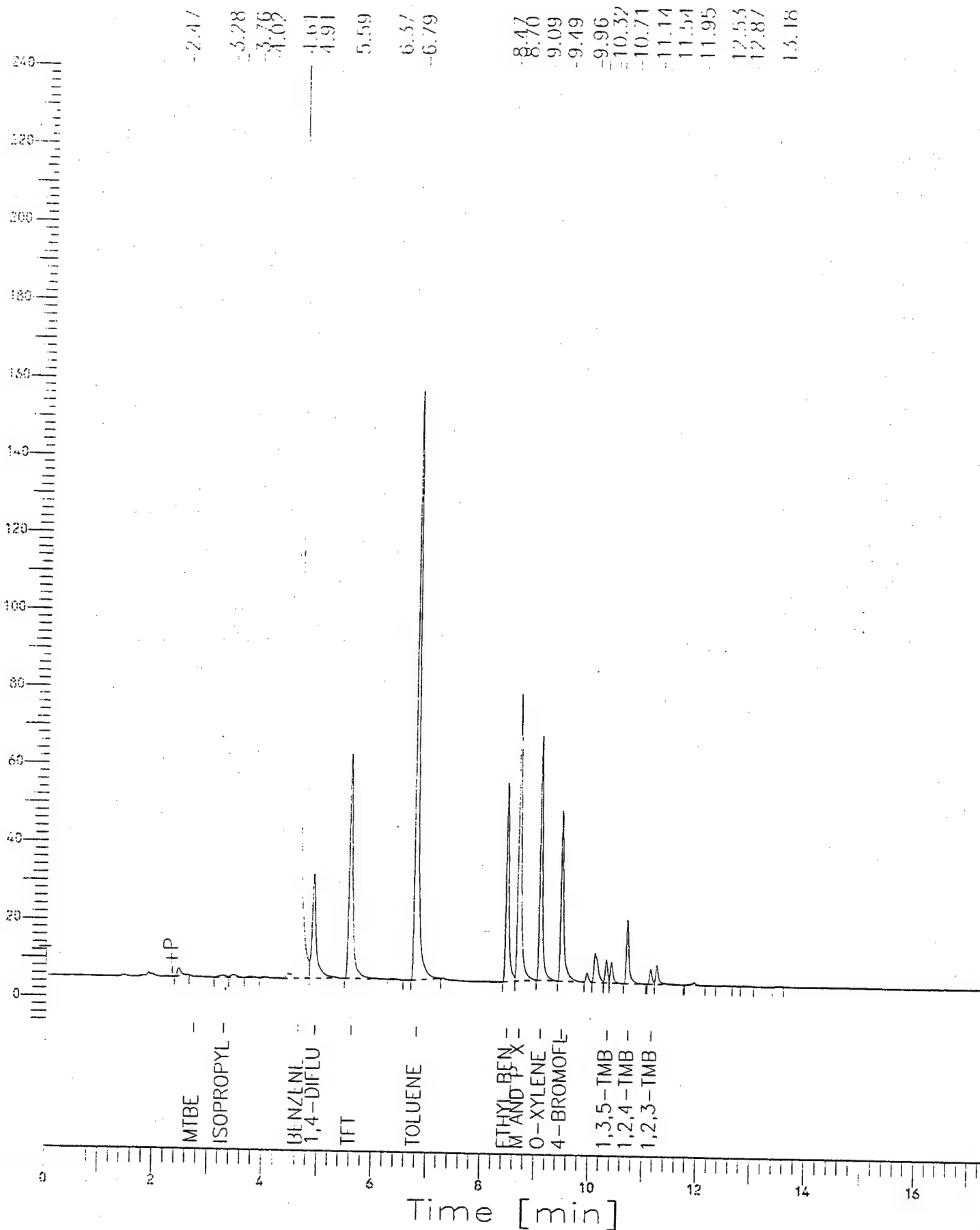
Time of Injection: 05/28/95 04:17

Low Point : -6.52 mV

Plot Scale: 248 mV

Page 1 of 1

High Point : 241.04 mV





HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 95 - 05 - 767

Approved for release by:

M. Scott Sample  
M. Scott Sample, Laboratory Director

Date: 6/9/95

Karen Satterfield  
Karen Satterfield, Project Manager

Date: 6/8/95



HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

June 8, 1995

Kathryn Pritchett  
OPERATIONAL TECHNOLOGY  
4100 N.W. Loop 410  
Suite 230  
San Antonio, TX 78229

Dear Ms. Pritchett:

Southern Petroleum Laboratories (SPL) is pleased to present the results of laboratory analysis to Operational Technology. Six water samples were received at our laboratory on May 20, 1995 at a temperature of 4 degrees Celsius. The following is a brief narrative of the laboratory analysis.


For water Sample "SI-002FB" (SPL ID# 9505767-02), one of the liter water bottles arrived at the laboratory broken. The client was notified, at the client's request this sample was analyzed for all the analyses listed on the Chain of Custody except for Semi-volatile Organics.

Water sample "025-003A-GW01" (SPL ID# 9505767-06) was analyzed for Semi-Volatile Organics by SW-846 method 8270. All QC was within control limits except for the surrogate Terphenyl-d14.

All other quality control data was within acceptance limits.

Please refer to this project by 9505767 to expedite any further discussions. I will be happy to address any questions or concerns you may have.

SOUTHERN PETROLEUM LABORATORIES

  
\_\_\_\_\_  
Karen Satterfield  
Project Manager

*QUALITY CONTROL*  
*DOCUMENTATION*

3A  
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPL

Case No.: 505714

SAS No.: \_\_\_\_\_

SDG NO.: 505767

Matrix Spike - EPA Sample No.: 026-003-RB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC.
1,1-Dichloroethene	50.0	0	50	100	61-145
Trichloroethene	50.0	0	50	100	71-120
Benzene	50.0	0	48	96	76-127
Toluene	50.0	0	49	98	76-125
Chlorobenzene	50.0	0	48	96	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
1,1-Dichloroethene	50.0	48	96	4	14	61-145
Trichloroethene	50.0	49	98	2	14	71-120
Benzene	50.0	47	94	2	11	76-127
Toluene	50.0	47	94	4	13	76-125
Chlorobenzene	50.0	47	94	2	13	75-130


# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

FORM III VOA - 1

  
\_\_\_\_\_

Idelis Williams, Q C Officer

## SPL Blank QC Report

page 1

Matrix: Aqueous  
Sample ID: BLANK  
Batch: L950524104646

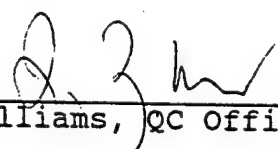
Reported on: 05/25/95 18:15  
Analyzed on: 05/24/95 22:00  
Analyst: JC

METHOD 8260 L144B03

C o m p o u n d	Result	Detection Limit	Units
Bromochloromethane	ND	5	ug/L
Bromomethane	ND	10	ug/L
Chloroethane	ND	10	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	10	ug/L
Dichlorodifluoromethane	ND	10	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethene (total)	ND	5	ug/L
2,2-Dichloropropane	ND	5	ug/L
Methylene Chloride	ND	5	ug/L
1,1,1-Trichloroethane	ND	5	ug/L
Trichlorofluoromethane	ND	5	ug/L
Vinyl Chloride	ND	10	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
Dibromomethane	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,1-Dichloropropene	ND	5	ug/L
Toluene	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Bromoform	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
1,3-Dichloropropane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
Styrene	ND	5	ug/L
1,1,1,2-Tetrachloroethane	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Xylene (Total)	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 2

Matrix: Aqueous  
Sample ID: BLANK  
Batch: L950524104646

Reported on: 05/25/95 18:15  
Analyzed on: 05/24/95 22:00  
Analyst: JC

METHOD 8260 L144B03

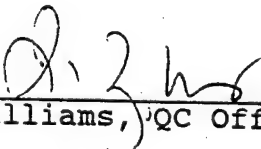
C o m p o u n d	Result	Detection Limit	Units
Bromobenzene	ND	5	ug/L
n-Butylbenzene	ND	5	ug/L
sec-Butylbenzene	ND	5	ug/L
tert-Butylbenzene	ND	5	ug/L
2-Chlorotoluene	ND	5	ug/L
4-Chlorotoluene	ND	5	ug/L
1,2-Dibromo-3-Chloropropan	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Isopropylbenzene	ND	5	ug/L
p-Isopropyltoluene	ND	5	ug/L
Naphthalene	ND	5	ug/L
N-Propylbenzene	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,2,3-Trichlorobenzene	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
1,2,3-Trichloropropane	ND	5	ug/L
1,2,4-Trimethylbenzene	ND	5	ug/L
1,3,5-Trimethylbenzene	ND	5	ug/L

S u r r o g a t e	Result	QC Criteria	Units
1,2-Dichloroethane-d4	97	76-114	% Recovery
Toluene-d8	102	88-110	% Recovery
Bromofluorobenzene	97	86-115	% Recovery

Samples in Batch 9505767-02

Notes

ND - Not detected.

  
Idelis Williams, QC Officer



Data File: /chem/1.i/1950524.b/1144b03.d  
Report Date: 24-May-1995 22:25

Page 1

SPL Labs

Volatiles by 624/8240

Data file: /chem/1.i/1950524.b/1144b03.d

Smp Id:

Inj Date: 24-MAY-95 22:00

Operator: JC

Inst ID: 1.i

Smp Info: BLANK-8260W/1X

Disc Info: L144W2//L144CW3

Comment:

Method: /chem/1.i/1950524.b/18260w.m

Run Date: 24-May-1995 20:31 jimmy

Quant Type: ISTD

Cal Date: 24-MAY-1995 20:04

Cal File: 1144cw3.d

Als bottle: 14

Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	----	--	-----	-----	-----	-----	-----
2 Pentafluorobenzene	168.00	5.812	5.820	(1.000)	187139	250		
24 1,4-Difluorobenzene	114.00	6.926	6.925	(1.000)	241511	250		
8 Chlorobenzene-d5	117.00	11.098	11.106	(1.000)	192906	250		
1,4-Dichlorobenzene-d4	152.00	14.485	14.493	(1.000)	92545	250		
19 1,2-Dichloroethane-d4	102.00	5.990	5.990	(0.865)	18166	240	49	
22 Toluene-d8	98.00	9.154	9.154	(1.322)	266347	250	51	
7 Bromofluorobenzene	95.00	12.773	12.782	(1.844)	108967	240	49	

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1144b03.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950524.b/18260w.m  
Misc Info: L144W2//L144CW3

Calibration Date: 05/24/95  
Calibration Time: 2004

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	187139	1.67
24 1,4-Difluorobenzene	239653	119826	479306	241511	0.78
38 Chlorobenzene-d5	191926	95963	383852	192906	0.51
48 1,4-Dichlorobenzene-	101540	50770	203080	92545	-8.86

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.81	-0.15
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.01
38 Chlorobenzene-d5	11.11	10.61	11.61	11.10	-0.08
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.48	-0.06

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144b03.d  
Date : 24-MAY-95 22:00

Client ID:

Sample Info: BLANK-82604/1X

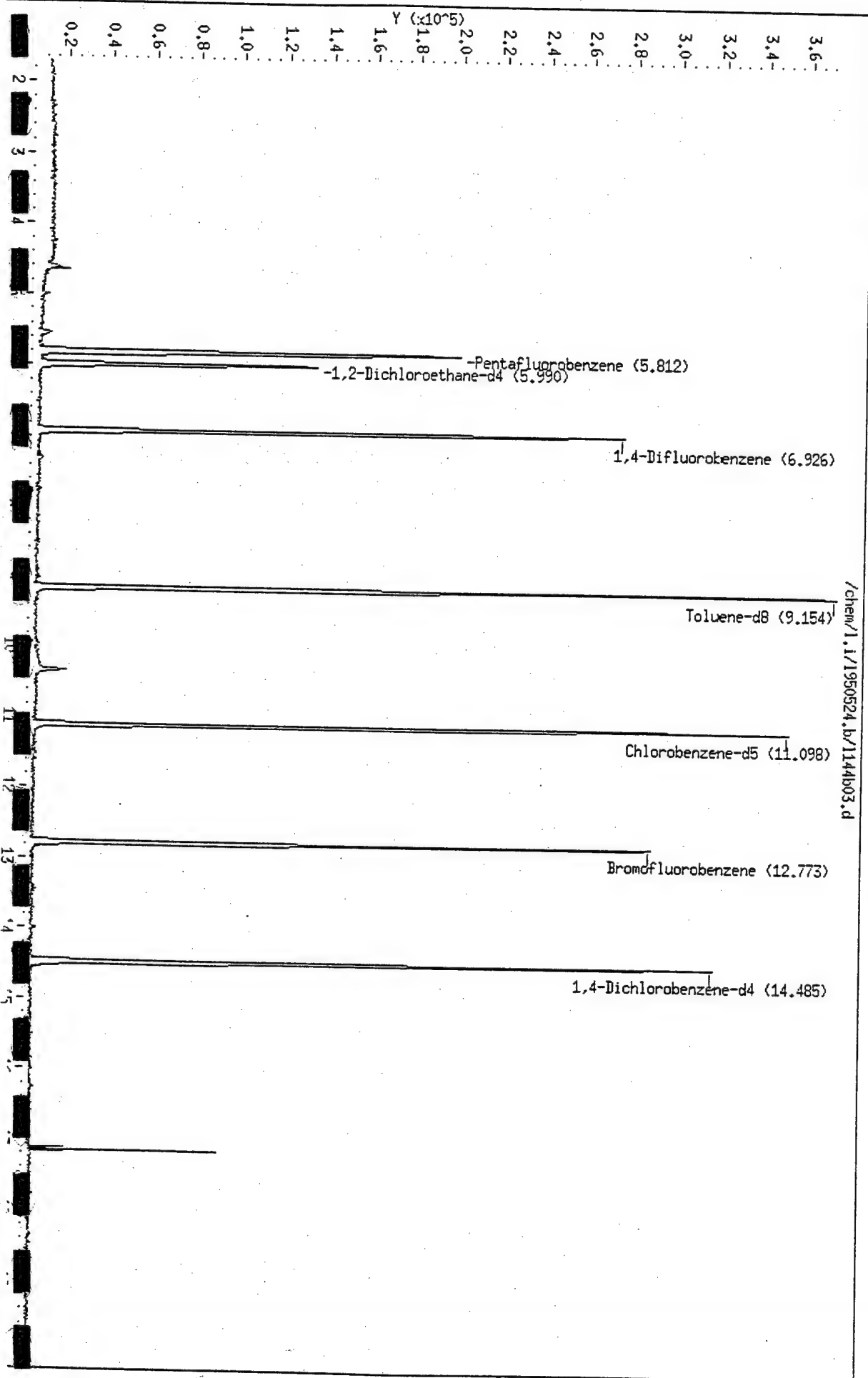
Purge Volume: 5.0

Column phase: 30m, 1µ5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25



Data File: /chem/1.i/1950524.b/1144bf4.d

Page 1

Date : 24-MAY-95 19:22

Client ID:

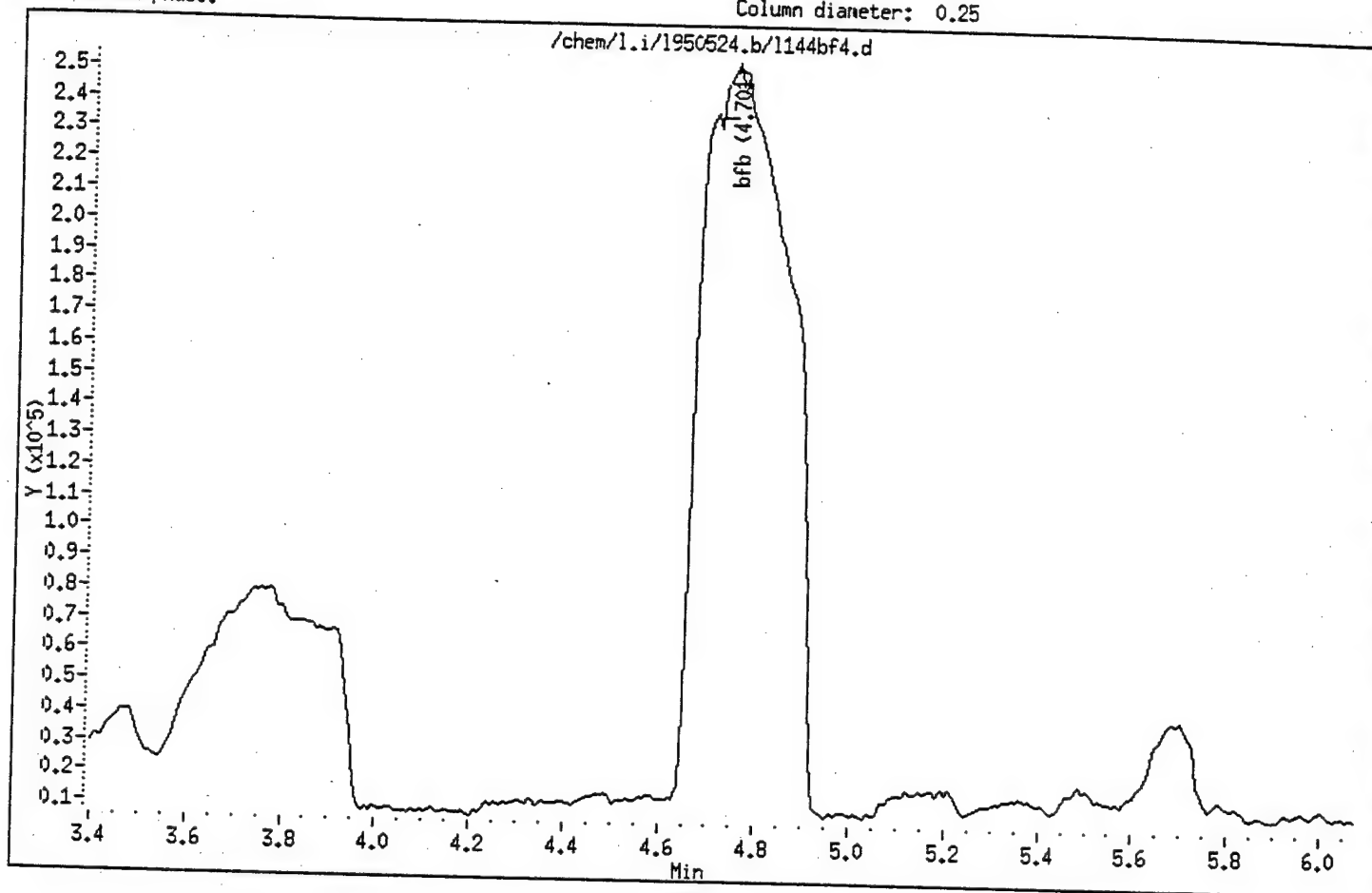
Instrument: 1.i

Sample Info: 50 NG BFB

Operator:

Column phase:

Column diameter: 0.25



Data File: /chem/1.1/1950524.b/1144bf4.d

Page 2

Date : 24-MAY-95 19:22

Client ID:

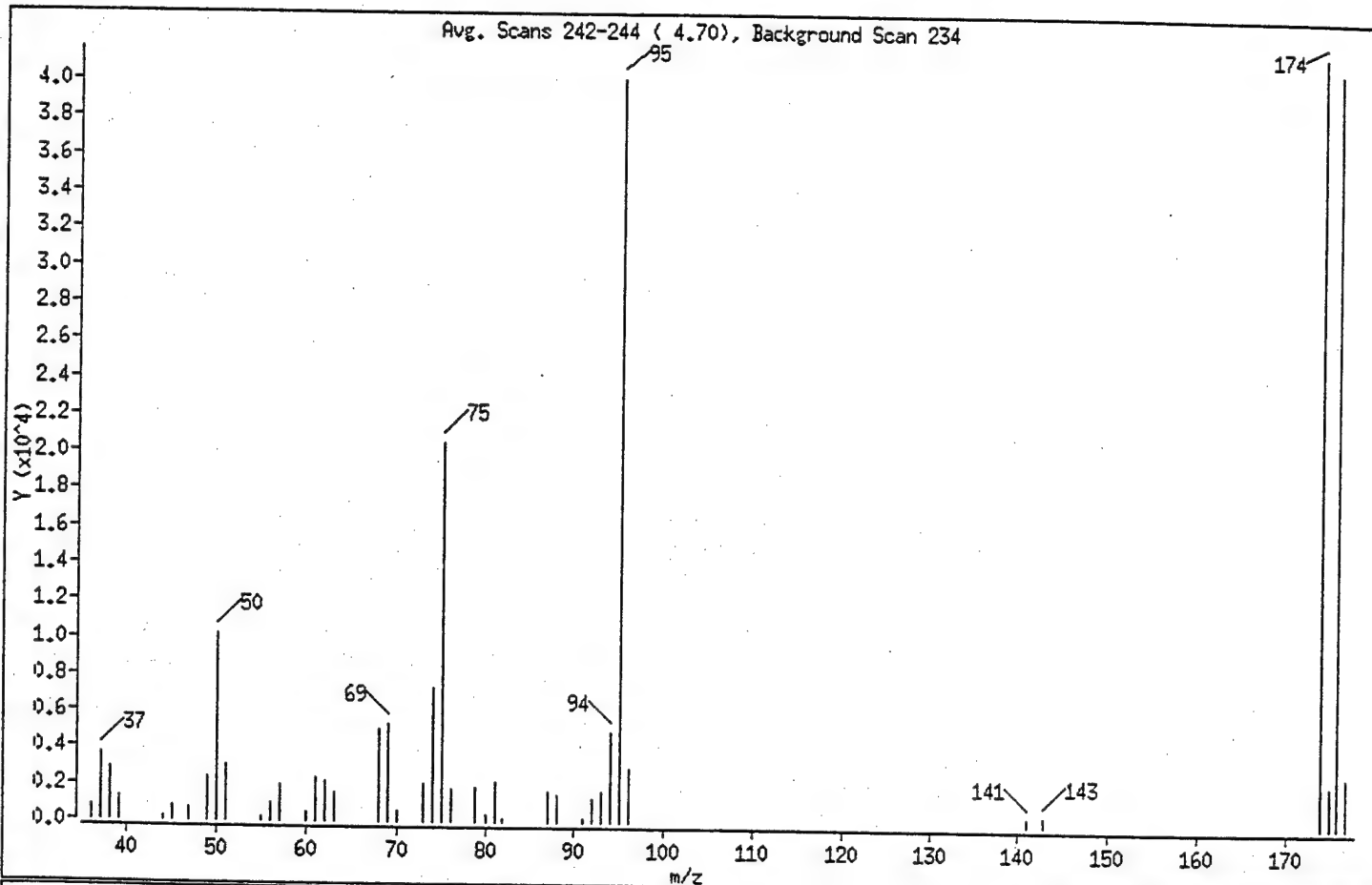
Instrument: 1.1

Sample Info: 50 NG BFB

Operator:

Column phase:  
1 bfb

Column diameter: 0.25



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	25.36
75	30.00 - 60.00% of mass 95	50.97
96	5.00 - 9.00% of mass 95	7.33
173	Less than 2.00% of mass 174	0.00 ( 0.00)
174	50.00 - 120.00% of mass 95	103.80
175	5.00 - 9.00% of mass 174	5.53 ( 5.33)
176	95.00 - 101.00% of mass 174	101.68 ( 97.95)
177	5.00 - 9.00% of mass 176	6.75 ( 6.64)

Data File: /chem/1.1/1950524.b/1144bf4.d

Page 3

Date : 24-MAY-95 19:22

Client ID:

Instrument: 1.1

Sample Info: 50 NG BFB

Operator:

Column phase:

Column diameter: 0.25

Data File: 1144bf4.d

Spectrum : Avg. Scans 242-244 ( 4.70), Background Scan 234

Largest m/z: 173.95

Number of peaks: 42

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.95	833	55.95	988	75.05	20472	94.05	4885
37.05	3604	57.05	1931	76.05	1763	95.05	40168
38.05	2825	60.05	539	78.85	1907	96.05	2946
39.05	1299	60.95	2342	79.95	379	140.95	362
44.00	156	62.05	2126	80.95	2124	142.85	521
45.00	805	63.05	1592	81.85	174	173.95	41696
47.00	675	68.00	5046	87.00	1679	175.05	2222
49.00	2346	69.00	5309	88.00	1495	175.95	40840
50.00	10186	70.00	553	90.90	150	176.95	2713
51.00	3067	73.00	2065	92.00	1271		
54.95	206	74.05	7252	93.00	1680		

## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 22-MAR-1995 15:28  
 End Cal Date : 22-MAR-1995 17:22  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/l.i/l950322.b/l8260w.m  
 Cal Date : 22-Mar-1995 17:49 jimmy  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/l.i/l950322.b/l081iw1.d  
 Level 2: /chem/l.i/l950322.b/l081iw2.d  
 Level 3: /chem/l.i/l950322.b/l081iw3.d  
 Level 4: /chem/l.i/l950322.b/l081iw4.d  
 Level 5: /chem/l.i/l950322.b/l081iw5.d

Compound	100 Level 1	250 Level 2	500 Level 3	750 Level 4	1000 Level 5	RRF	% RSD
1 Chloromethane	0.76177	0.72128	0.69719	0.67441	0.67004	0.70494	5.358
3 Vinyl Chloride	0.59622	0.55286	0.52514	0.49130	0.46295	0.52569	9.899
4 Bromomethane	0.47697	0.43193	0.43699	0.42903	0.41859	0.43870	5.112
5 Chloroethane	0.34545	0.34162	0.33705	0.32975	0.32280	0.33533	2.722
6 Trichlorofluoromethane	0.47357	0.52156	0.55996	0.56981	0.58923	0.54283	8.454
8 1,1-Dichloroethene	0.40958	0.41559	0.41335	0.40892	0.41184	0.41186	0.666
9 Methylene Chloride	0.48322	0.47544	0.47829	0.47530	0.47249	0.47695	0.852
11 trans-1,2-Dichloroethene	0.48164	0.47961	0.47852	0.48889	0.48199	0.48213	0.838
12 1,1-Dichloroethane	1.03799	1.03113	1.03061	1.02631	1.01669	1.02855	0.762
M 13 1,2-Dichloroethene (total)	0.49724	0.49844	0.49998	0.50487	0.49959	0.50002	0.582
16 cis-1,2-Dichloroethene	0.51285	0.51727	0.52145	0.52084	0.51719	0.51792	0.667
17 Bromochloromethane	0.25991	0.26488	0.26035	0.26137	0.25642	0.26059	1.165
18 Chloroform	0.96113	0.94872	0.95368	0.93858	0.93368	0.94716	1.175
20 1,1,1-Trichloroethane	0.52217	0.51445	0.51180	0.50409	0.50647	0.51180	1.390
21 1,2-Dichloroethane	0.83286	0.83585	0.83062	0.82841	0.81300	0.82815	1.075
22 Benzene	1.49126	1.48025	1.45491	1.43053	1.44620	1.46063	1.702
23 Carbon Tetrachloride	0.39652	0.40203	0.40418	0.40450	0.41347	0.40414	1.514
25 1,2-Dichloropropane	0.41738	0.42173	0.42179	0.40862	0.41563	0.41703	1.299
26 Trichloroethene	0.34851	0.33945	0.34285	0.34399	0.33896	0.34275	1.129
27 Bromodichloromethane	0.48781	0.49428	0.49366	0.48939	0.50181	0.49339	1.105
30 cis-1,3-Dichloropropene	0.55709	0.55567	0.57860	0.57148	0.58845	0.57446	2.001
31 trans-1,3-Dichloropropene	0.51163	0.53559	0.54539	0.54026	0.54957	0.53649	2.770
33 Toluene	0.80520	0.81364	0.81320	0.80581	0.81654	0.81088	0.626
34 1,1,2-Trichloroethane	0.29439	0.29531	0.28996	0.28548	0.28747	0.29052	1.470
36 Dibromochloromethane	0.38175	0.39620	0.40295	0.41275	0.41561	0.40185	3.397
37 Tetrachloroethene	0.36483	0.36231	0.35299	0.35869	0.35843	0.35945	1.248
39 Chlorobenzene	1.03103	1.03167	1.03273	1.03233	1.00728	1.02701	1.076

## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 22-MAR-1995 15:28  
 End Cal Date : 22-MAR-1995 17:22  
 Quant Method : ISTD  
 Origin : Included  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/1.i/1950322.b/18260w.m  
 Cal Date : 22-Mar-1995 17:49 jimmy  
 Curve Type : Average

Compound	100 Level 1	250 Level 2	500 Level 3	750 Level 4	1000 Level 5	RRF	% RSD
M 40 Xylene (Total)	0.54004	0.66417	0.66867	0.66384	0.66286	0.65992	1.718
41 Ethylbenzene	0.52587	0.52654	0.54030	0.54255	0.54397	0.53585	1.661
42 m,p-Xylene(s)	0.64283	0.66699	0.67089	0.66475	0.66325	0.66174	1.656
43 Bromoform	0.26128	0.28189	0.29823	0.30629	0.31234	0.29201	7.065
44 Styrene	1.01955	1.09351	1.13113	1.13805	1.13989	1.10443	4.622
45 o-Xylene	0.63444	0.65854	0.66422	0.66203	0.66207	0.65626	1.884
46 1,1,2,2-Tetrachloroethane	0.51501	0.53748	0.54162	0.51224	0.53821	0.52891	2.661
60 Dichlorodifluoromethane	0.67018	0.64801	0.65402	0.66131	0.66783	0.66027	1.408
74 2,2-Dichloropropane	0.58486	0.59050	0.59475	0.57859	0.57118	0.58398	1.606
75 1,2,3-Trichloropropane	0.48423	0.49631	0.49378	0.49657	0.49075	0.49233	1.036
78 1,1,1,2-Tetrachloroethane	0.35627	0.35959	0.35863	0.36132	0.36443	0.36005	0.848
80 2-Chlorotoluene	3.74958	3.91323	3.98445	4.04541	3.99748	3.93803	2.933
81 4-Chlorotoluene	1.47743	1.52373	1.56935	1.58954	1.57421	1.54685	2.968
84 1,2-Dibromoethane	0.34429	0.34052	0.33916	0.33602	0.34448	0.34089	1.051
87 Isopropylbenzene	2.89349	2.90827	2.91253	2.96153	2.91903	2.91897	0.876
88 N-Propylbenzene	6.56891	6.49736	6.45726	6.61133	6.43760	6.51449	1.234
89 1,3,5-Trimethylbenzene	2.52281	2.52915	2.55901	2.60760	2.55685	2.55508	1.311
90 1,2,4-Trimethylbenzene	2.58456	2.60031	2.62575	2.63909	2.57824	2.60559	1.206
91 tert-Butylbenzene	2.38278	2.38451	2.38024	2.43369	2.39398	2.39504	0.928
92 sec-Butylbenzene	2.58456	2.60031	2.62575	2.63909	2.57824	2.60559	1.006
93 p-Isopropyltoluene	2.49674	2.52419	2.57626	2.62662	2.59611	2.56398	2.065
94 n-Butylbenzene	2.66372	2.68132	2.78065	2.84023	2.81168	2.75552	2.863
95 1,3-Dichlorobenzene	1.59262	1.55169	1.57973	1.59976	1.56298	1.57736	1.270
96 1,4-Dichlorobenzene	1.62724	1.59414	1.61184	1.63353	1.61140	1.61563	0.953
97 1,2-Dichlorobenzene	1.52318	1.48869	1.52047	1.54229	1.50668	1.51626	1.317
98 1,2,4-Trichlorobenzene	0.85036	0.88682	0.95990	1.00768	0.99019	0.93899	7.214
106 1,3-Dichloropropane	0.80726	0.80855	0.80763	0.81172	0.80246	0.80752	0.412
108 1,2-Dibromo-3-Chloropropane	0.10181	0.09750	0.10464	0.10435	0.106'6	0.10305	3.492
112 Dibromomethane	0.36427	0.36874	0.37027	0.37349	0.36792	0.36894	0.913
114 Bromobenzene	0.91993	0.89187	0.88944	0.90537	0.89741	0.90080	1.368
115 1,1-Dichloropropene	0.68647	0.70097	0.70834	0.72235	0.70550	0.70472	1.838
116 Hexachlorobutadiene	0.45102	0.44617	0.46800	0.47735	0.46702	0.46191	2.798
117 Naphthalene	1.67144	1.88063	2.06328	2.19418	2.20563	2.00303	11.334
118 1,2,3-Trichlorobenzene	0.91339	0.98168	1.05912	1.11328	1.10767	1.03503	8.314



## SPL Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 22-MAR-1995 15:28  
End Cal Date : 22-MAR-1995 17:22  
Quant Method : ISTD  
Origin : Included  
Target Version : 3.10  
Integrator : HP RTE  
Method file : /chem/1.i/1950322.b/18260w.m  
Cal Date : 22-Mar-1995 17:49 jimmy  
Curve Type : Average

Compound	100	250	500	750	1000	RRF	% RSD
	Level 1	Level 2	Level 3	Level 4	Level 5		
19 1,2-Dichloroethane-d4	0.07637	0.08118	0.08097	0.07816	0.07731	0.07880	2.758
32 Toluene-d8	1.06322	1.10086	1.11380	1.08328	1.09473	1.09118	1.752
47 Bromofluorobenzene	0.47273	0.47023	0.48760	0.48048	0.48155	0.47852	1.469

ta File: /chem/1.i/1950322.b/l081iw1.d  
port Date: 22-Mar-1995 17:50

Page 1

SPL Labs

Volatiles by 624/8240

ta file : /chem/1.i/1950322.b/l081iw1.d

b Smp Id:

j Date : 22-MAR-1995 15:28

erator : JC

p Info : 20 UG-L STD-8260W/1X

sc Info : L081W2//L081CW2

mmment :

chod : /chem/1.i/1950322.b/l8260w.m

ch Date : 22-Mar-1995 17:50 jimmy

l Date : 22-MAR-1995 15:57

s bottle: 2

Factor: 1.000

egrator: HP RTE

get Version: 3.10

Inst ID: 1.i

Quant Type: ISTD

Cal File: l081iw2.d

Calibration Sample, Level: 1

Compound Sublist: 8260.sub

ounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
Bromochloromethane	128.00	5.234	5.234	(0.898)	17049	100	100
4 Bromomethane	94.00	2.122	2.122	(0.364)	31287	100	110
5 Chloroethane	64.00	2.193	2.193	(0.376)	22660	100	100
8 Chloroform	83.00	5.243	5.243	(0.899)	63045	100	100
Chloromethane	50.00	1.774	1.774	(0.304)	49968	100	110
Dichlorodifluoromethane	85.00	1.694	1.694	(0.290)	43960	100	100
1,1-Dichloroethane	63.00	4.173	4.173	(0.716)	68087	100	100
1,1-Dichloroethene	96.00	3.005	3.005	(0.515)	26866	100	99
cis-1,2-Dichloroethene	96.00	4.967	4.967	(0.852)	33640	100	99
trans-1,2-Dichloroethene	96.00	3.834	3.834	(0.657)	31593	100	100
1,2-Dichloroethene (total)	96.00				65233	200	200
2,2-Dichloropropane	77.00	5.154	5.154	(0.884)	38364	100	100
Methylene Chloride	84.00	3.246	3.246	(0.557)	31697	100	100
1,1,1-Trichloroethane	97.00	6.028	6.028	(0.869)	46960	100	100
Trichlorofluoromethane	100.90	2.550	2.550	(0.437)	31064	100	87
Vinyl Chloride	62.00	1.881	1.881	(0.323)	39109	100	110
Benzene	78.00	6.474	6.474	(0.933)	134113	100	100
Bromodichloromethane	83.00	7.687	7.687	(1.108)	43870	100	99
Carbon Tetrachloride	117.00	6.501	6.501	(0.937)	35660	100	98
1,2-Dibromoethane	107.00	10.228	10.228	(1.474)	30963	100	100
Dibromomethane	93.00	7.553	7.553	(1.295)	23894	100	99
1,2-Dichloroethane	62.00	6.117	6.117	(1.049)	54631	100	100
1,2-Dichloropropane	63.00	7.464	7.464	(1.076)	37536	100	100
1,1-Dichloropropene	75.00	6.313	6.313	(1.083)	45029	100	97
cis-1,3-Dichloropropene	75.00	8.543	8.543	(1.231)	50100	100	97
trans-1,3-Dichloropropene	75.00	9.167	9.167	(1.321)	46012	100	95
Toluene	92.00	9.256	9.256	(1.334)	72414	100	99
1,1,2-Trichloroethane	83.00	9.336	9.336	(1.346)	26475	100	100
Trichloroethene	130.00	7.490	7.490	(1.080)	31342	100	100

ounds	QUANT SIG				RESPONSE	AMOUNTS	
	MASS	RT	EXP RT	REL RT		CAL-AMT ( ng)	ON-COL ( ng)
43 Bromoform	173.00	12.029	12.029	(1.084)	18963	100	89
6 Dibromochloromethane	129.00	9.960	9.960	(0.897)	27706	100	95
9 Chlorobenzene	112.00	11.146	11.146	(1.004)	74829	100	100
06 1,3-Dichloropropane	76.00	9.657	9.657	(1.656)	52952	100	100
11 Ethylbenzene	106.00	11.450	11.450	(1.031)	38166	100	98
1 Styrene	104.00	12.083	12.083	(1.088)	73996	100	92
78 1,1,1,2-Tetrachloroethane	131.00	11.200	11.200	(1.009)	25857	100	99
37 Tetrachloroethene	164.00	10.308	10.308	(0.928)	26478	100	100
5 m-Xylene	106.00	12.136	12.136	(1.093)	46046	100	97
2 m,p-Xylene(s)	106.00	11.610	11.610	(1.046)	93310	200	190
10 Xylene (Total)	106.00				139356	300	290
4 Bromobenzene	156.00	12.983	12.983	(0.897)	34444	100	100
Butylbenzene	91.00	15.213	15.213	(1.050)	99735	100	97
sec-Butylbenzene	105.00	14.107	14.107	(0.974)	96771	100	99
1 tert-Butylbenzene	119.00	14.089	14.089	(0.973)	89216	100	99
0 Chlorotoluene	91.00	13.340	13.340	(2.288)	245953	100	95
Chlorotoluene	91.00	13.447	13.447	(2.306)	96912	100	96
1,2-Dibromo-3-Chloropropane	75.00	15.784	15.784	(2.707)	6678	100	99
7 2-Dichlorobenzene	146.00	14.972	14.972	(1.034)	57031	100	100
3-Dichlorobenzene	146.00	14.401	14.401	(0.994)	59631	100	100
1,4-Dichlorobenzene	146.00	14.517	14.517	(1.002)	60927	100	100
5 Hexachlorobutadiene	225.00	17.736	17.736	(1.225)	16887	100	98
7 Isopropylbenzene	105.00	12.752	12.752	(0.881)	108338	100	99
Isopropyltoluene	119.00	14.642	14.642	(1.011)	93483	100	97
Naphthalene	128.00	17.353	17.353	(1.198)	62582	100	83
8 n-Propylbenzene	91.00	13.340	13.340	(0.921)	245953	100	100
6 1,2,2-Tetrachloroethane	83.00	12.484	12.484	(1.125)	37378	100	97
2,3-Trichlorobenzene	180.00	17.184	17.184	(1.187)	34199	100	88
1,2,4-Trichlorobenzene	180.00	17.790	17.790	(1.228)	31839	100	90
5 2,3-Trichloropropane	75.00	12.645	12.645	(2.168)	31763	100	98
2,4-Trimethylbenzene	105.00	14.107	14.107	(0.974)	96771	100	99
1,3,5-Trimethylbenzene	105.00	13.599	13.599	(0.939)	94459	100	99
1 Pentafluorobenzene	168.00	5.832	5.832	(1.000)	163987	250	
4 1,4-Difluorobenzene	114.00	6.937	6.937	(1.000)	224831	250	
lorobenzene-d5	117.00	11.102	11.102	(1.000)	181443	250	
1,4-Dichlorobenzene-d4	152.00	14.482	14.482	(1.000)	93605	250	
1 2-Dichloroethane-d4	102.00	6.001	6.001	(0.865)	6868	100	97
luene-d8	98.00	9.158	9.158	(1.320)	95618	100	97
omofluorobenzene	95.00	12.769	12.769	(1.841)	42514	100	99

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

strument ID: 1.i  
b File ID: 1081iw1.d  
b Smp Id:  
alysis Type: VOA  
ant Type: ISTD  
erator: JC  
thod File: /chem/1.i/1950322.b/18260w.m  
sc Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	163987	0.28
4 1,4-Difluorobenzene	224833	112416	449666	224831	0.00
8 Chlorobenzene-d5	182201	91100	364402	181443	-0.42
8 1,4-Dichlorobenzene-	98492	49246	196984	93605	-4.96

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.83	-0.16
4 1,4-Difluorobenzene	6.95	6.45	7.45	6.94	-0.13
8 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00
8 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	0.00

A UPPER LIMIT = +100% of internal standard area.  
A LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950322.b/10011w1.d  
Date : 22-MAR-1995 15:28

Client ID:

Sample Info: 20 UG-L STD-8260M/1X

Purge Volume: 5.0

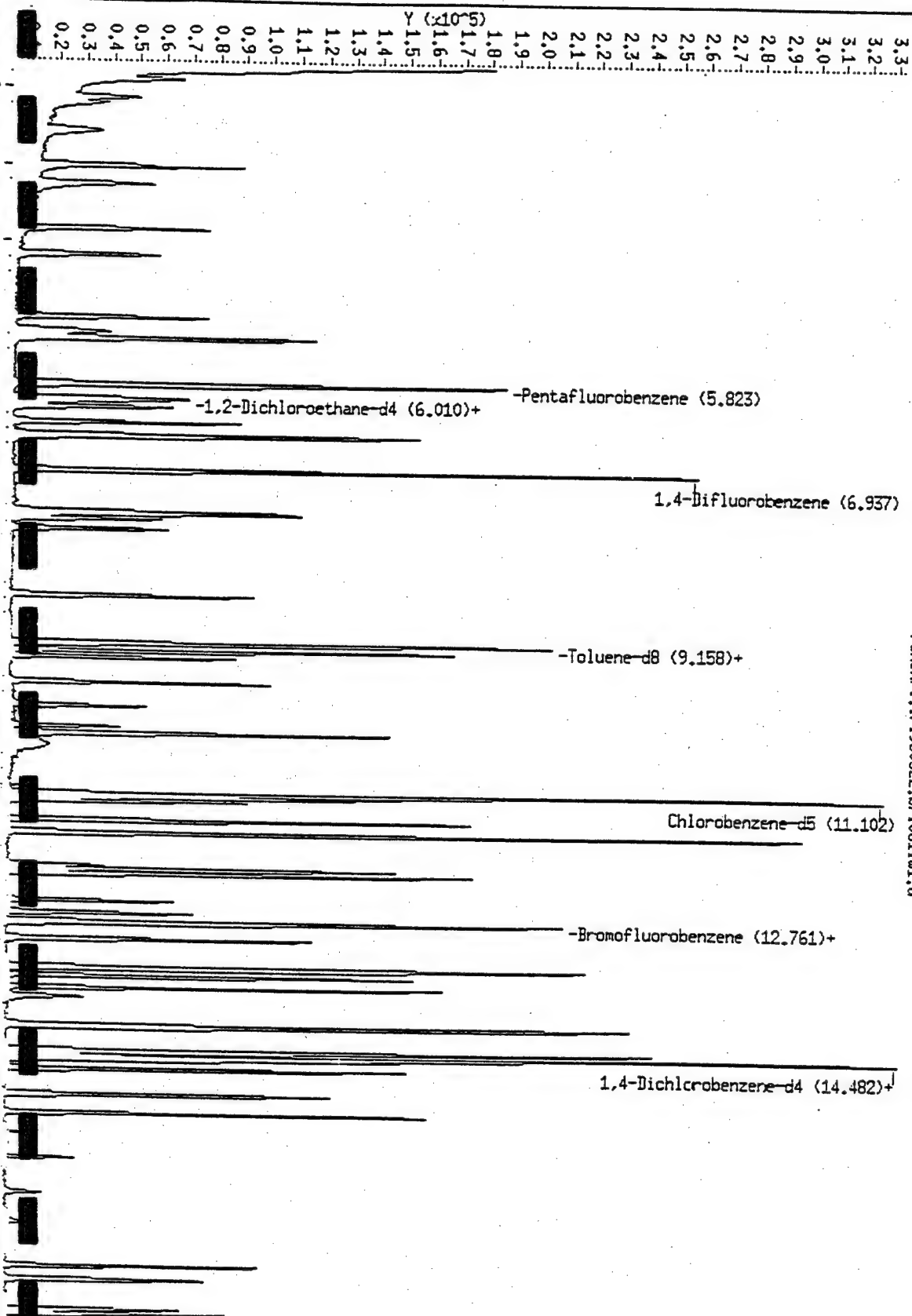
Column phase: 30m,lp5ms,0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950322.b/10011w1.d



File: /chem/1.i/1950322.b/l081iw2.d  
Port Date: 22-Mar-1995 17:51

Page 1

SPL Labs

Volatiles by 624/8240  
File: /chem/1.i/1950322.b/l081iw2.d

Smp Id:  
Date: 22-MAR-1995 15:57  
Operator: JC  
Info: 50 UG-L STD-8260W/1X  
Sc Info: L081W2//L081CW2  
ment:

Inst ID: 1.i

Method: /chem/1.i/1950322.b/l8260w.m

Sh Date: 22-Mar-1995 17:50 jimmy

Date: 22-MAR-1995 15:57

bottle: 3

Factor: 1.000

egrator: HP RTE

get Version: 3.10

Quant Type: ISTD  
Cal File: l081iw2.d  
Calibration Sample, Level: 2

Compound Sublist: 8260.sub

ounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
Bromochloromethane	128.00	5.243	5.243	(0.898)	43316	250	250
Bromomethane	94.00	2.122	2.122	(0.363)	70634	250	250
Chloroethane	64.00	2.194	2.194	(0.376)	55866	250	250
Chloroform	83.00	5.252	5.252	(0.899)	155146	250	250
Chloromethane	50.00	1.783	1.783	(0.305)	117953	250	250
Dichlorodifluoromethane	85.00	1.685	1.685	(0.289)	105970	250	240
1,1-Dichloroethane	63.00	4.182	4.182	(0.716)	168622	250	250
1,1-Dichloroethene	96.00	3.014	3.014	(0.516)	67963	250	250
cis-1,2-Dichloroethene	96.00	4.985	4.985	(0.853)	84590	250	250
trans-1,2-Dichloroethene	96.00	3.843	3.843	(0.658)	78431	250	250
1,2-Dichloroethene (total)	96.00				163021	500	500
2,2-Dichloropropane	77.00	5.163	5.163	(0.884)	96565	250	250
Methylene Chloride	84.00	3.246	3.246	(0.556)	77749	250	250
1,1,1-Trichloroethane	97.00	6.037	6.037	(0.869)	115665	250	250
Trichlorofluoromethane	100.90	2.559	2.559	(0.438)	85291	250	240
Vinyl Chloride	62.00	1.890	1.890	(0.324)	90410	250	260
Benzene	78.00	6.483	6.483	(0.933)	332809	250	250
Bromodichloromethane	83.00	7.687	7.687	(1.107)	111131	250	250
Carbon Tetrachloride	117.00	6.510	6.510	(0.937)	90390	250	250
1,2-Dibromoethane	107.00	10.228	10.228	(1.472)	76560	250	250
Dibromomethane	93.00	7.562	7.562	(1.295)	60301	250	250
1,2-Dichloroethane	62.00	6.126	6.126	(1.049)	136689	250	250
1,2-Dichloropropane	63.00	7.464	7.464	(1.074)	94818	250	250
1,1-Dichloropropene	75.00	6.322	6.322	(1.082)	114631	250	250
cis-1,3-Dichloropropene	75.00	8.552	8.552	(1.231)	129654	250	250
trans-1,3-Dichloropropene	75.00	9.176	9.176	(1.321)	120418	250	250
Toluene	92.00	9.256	9.256	(1.332)	182933	250	250
1,1,2-Trichloroethane	83.00	9.345	9.345	(1.345)	66396	250	250
Trichloroethene	130.00	7.499	7.499	(1.080)	76320	250	250

pounds	QUANT SIG			REL RT	RESPONSE	AMOUNTS	
	MASS	RT	EXP RT			CAL-AMT ( ng)	ON-COL ( ng)
Bromoform	173.00	12.038	12.038	(1.084)	51361	250	240
Dibromochloromethane	129.00	9.970	9.970	(0.898)	72188	250	250
99 Chlorobenzene	112.00	11.147	11.147	(1.004)	187971	250	250
106 1,3-Dichloropropane	76.00	9.666	9.666	(1.655)	132223	250	250
Ethylbenzene	106.00	11.450	11.450	(1.031)	95937	250	240
Styrene	104.00	12.083	12.083	(1.088)	199238	250	250
78 1,1,1,2-Tetrachloroethane	131.00	11.209	11.209	(1.010)	65517	250	250
Tetrachloroethene	164.00	10.308	10.308	(0.928)	66014	250	250
o-Xylene	106.00	12.136	12.136	(1.093)	119986	250	250
2 m,p-Xylene(s)	106.00	11.619	11.619	(1.047)	243052	500	500
40 Xylene (Total)	106.00				363038	750	750
Bromobenzene	156.00	12.984	12.984	(0.897)	87842	250	250
n-Butylbenzene	91.00	15.213	15.213	(1.050)	264089	250	240
2 sec-Butylbenzene	105.00	14.107	14.107	(0.974)	256110	250	250
91 tert-Butylbenzene	119.00	14.089	14.089	(0.973)	234855	250	250
2-Chlorotoluene	91.00	13.340	13.340	(2.284)	639938	250	250
4-Chlorotoluene	91.00	13.447	13.447	(2.302)	249179	250	250
8 1,2-Dibromo-3-Chloropropane	75.00	15.784	15.784	(2.702)	15945	250	240
1,2-Dichlorobenzene	146.00	14.972	14.972	(1.034)	146624	250	240
1,3-Dichlorobenzene	146.00	14.402	14.402	(0.994)	152829	250	240
1,4-Dichlorobenzene	146.00	14.517	14.517	(1.002)	157010	250	250
16 Hexachlorobutadiene	225.00	17.737	17.737	(1.225)	43944	250	240
Isopropylbenzene	105.00	12.761	12.761	(0.881)	286441	250	250
p-Isopropyltoluene	119.00	14.642	14.642	(1.011)	248613	250	250
Naphthalene	128.00	17.353	17.353	(1.198)	185227	250	230
38 N-Propylbenzene	91.00	13.340	13.340	(0.921)	639938	250	250
1,1,2,2-Tetrachloroethane	83.00	12.484	12.484	(1.124)	97930	250	250
1,2,3-Trichlorobenzene	180.00	17.184	17.184	(1.187)	96688	250	240
1,2,4-Trichlorobenzene	180.00	17.790	17.790	(1.228)	87345	250	240
1,2,3-Trichloropropane	75.00	12.645	12.645	(2.165)	81163	250	250
1,2,4-Trimethylbenzene	105.00	14.107	14.107	(0.974)	256110	250	250
1,3,5-Trimethylbenzene	105.00	13.599	13.599	(0.939)	249101	250	250
4 Pentafluorobenzene	168.00	5.841	5.841	(1.000)	163532	250	
4,4-Difluorobenzene	114.00	6.947	6.947	(1.000)	224833	250	
Chlorobenzene-d5	117.00	11.102	11.102	(1.000)	182201	250	
1,4-Dichlorobenzene-d4	152.00	14.482	14.482	(1.000)	98492	250	
9 1,2-Dichloroethane-d4	102.00	6.010	6.010	(0.865)	18251	250	260
2 Toluene-d8	98.00	9.158	9.158	(1.318)	247509	250	250
Bromofluorobenzene	95.00	12.779	12.779	(1.840)	105724	250	240

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
b File ID: 1081iw2.d  
b Smp Id:  
Analysis Type: VOA  
Ant Type: ISTD  
erator: JC  
ethod File: /chem/1.i/1950322.b/18260w.m  
sc Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	163532	0.00
24 1,4-Difluorobenzene	224833	112416	449666	224833	0.00
38 Chlorobenzene-d5	182201	91100	364402	182201	0.00
48 1,4-Dichlorobenzene-	98492	49246	196984	98492	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.84	0.00
24 1,4-Difluorobenzene	6.95	6.45	7.45	6.95	0.00
38 Chlorobenzene-d5	11.10	10.60	11.60	11.10	0.00
48 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	0.00

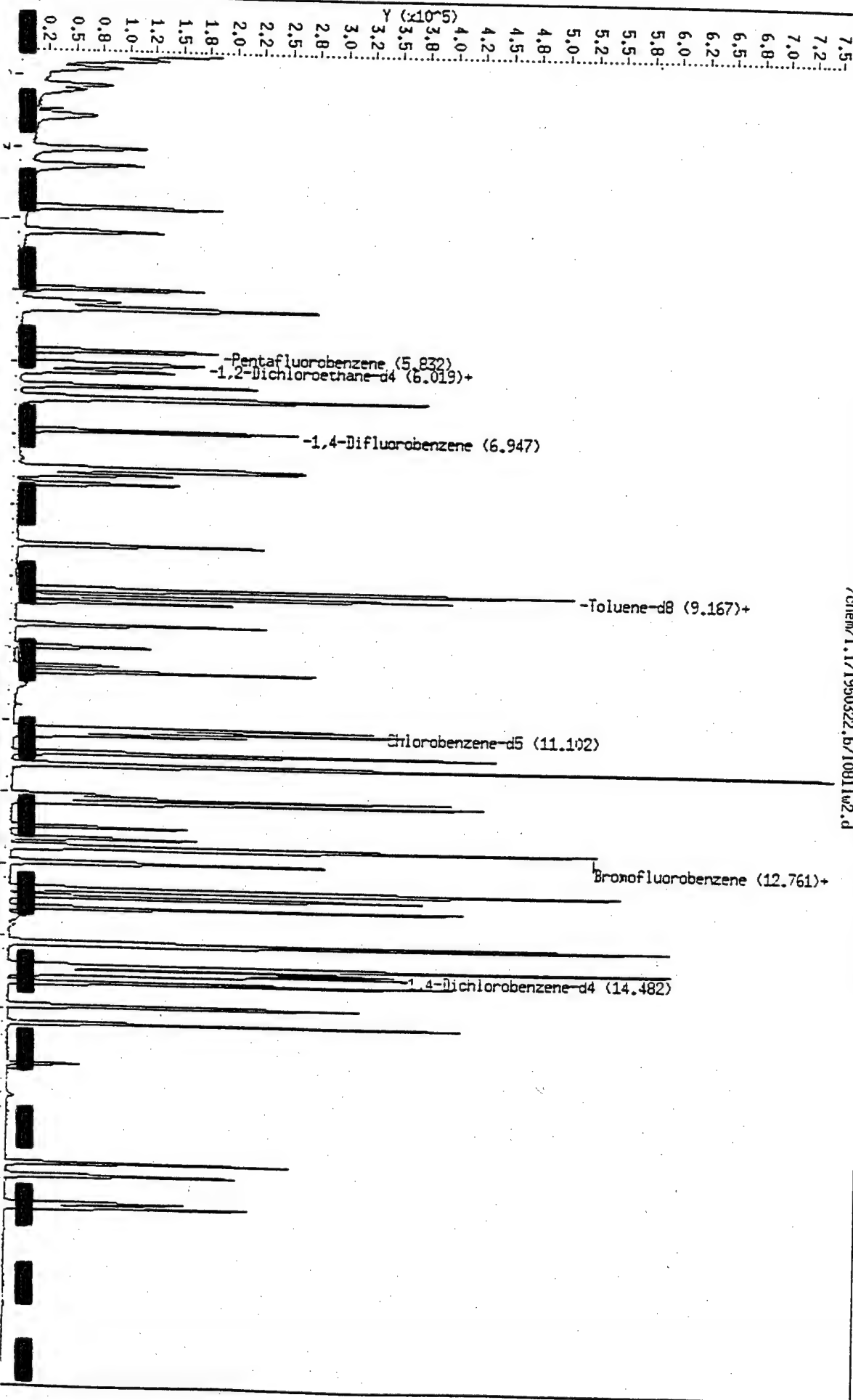
EA UPPER LIMIT = +100% of internal standard area.  
EA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950322.b/1081lw2.d  
Date: 22-MAR-1995 15:57  
Client ID:  
Sample Info: 50 UC-1 STD-8260M/IX  
Purge Volume: 5.0  
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1  
Operator: JC  
Column diameter: 0.25

/chem/1.1/1950322.b/1081lw2.d



File: /chem/1.i/1950322.b/l081iw3.d  
Port Date: 22-Mar-1995 17:51

Page 1

SPL Labs

File: /chem/1.i/1950322.b/l081iw3.d  
Smp Id: Volatiles by 624/8240

Date: 22-MAR-1995 16:25  
Operator: JC  
Info: 100 UG-L STD-8260W/1X  
Info: L081W2//L081CW2  
ment:

Inst ID: 1.i

Method: /chem/1.i/1950322.b/l8260w.m

Print Date: 22-Mar-1995 17:51 jimmy

Date: 22-MAR-1995 15:57

bottle: 4

Factor: 1.000

Operator: HP RTE

get Version: 3.10

Quant Type: ISTD

Cal File: l081iw2.d

Calibration Sample, Level: 3

Compound Sublist: 8260.sub

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
Bromochloromethane	128.00	5.233	5.233	(0.898)	85590	500	500
Bromomethane	94.00	2.121	2.121	(0.364)	143660	500	500
Chloroethane	64.00	2.192	2.192	(0.376)	110805	500	500
Chloroform	83.00	5.251	5.251	(0.901)	313520	500	500
Chloromethane	50.00	1.782	1.782	(0.306)	229199	500	490
Dichlorodifluoromethane	85.00	1.684	1.684	(0.289)	215007	500	500
1,1-Dichloroethane	63.00	4.172	4.172	(0.716)	338812	500	500
1,1-Dichloroethene	96.00	3.013	3.013	(0.517)	135889	500	500
cis-1,2-Dichloroethene	96.00	4.975	4.975	(0.853)	171425	500	500
trans-1,2-Dichloroethene	96.00	3.833	3.833	(0.657)	157312	500	500
1,2-Dichloroethene (total)	96.00				328737	1000	1000
2,2-Dichloropropane	77.00	5.162	5.162	(0.885)	195523	500	510
Methylene Chloride	84.00	3.245	3.245	(0.556)	157236	500	500
1,1,1-Trichloroethane	97.00	6.045	6.045	(0.870)	232267	500	500
Trichlorofluoromethane	100.90	2.558	2.558	(0.439)	184087	500	520
Vinyl Chloride	62.00	1.889	1.889	(0.324)	172640	500	500
Benzene	78.00	6.482	6.482	(0.933)	660275	500	500
Bromodichloromethane	83.00	7.685	7.685	(1.107)	224034	500	500
Carbon Tetrachloride	117.00	6.508	6.508	(0.937)	183426	500	500
1,2-Dibromoethane	107.00	10.236	10.236	(1.474)	153917	500	500
Dibromomethane	93.00	7.561	7.561	(1.297)	121725	500	500
1,2-Dichloroethane	62.00	6.125	6.125	(1.050)	273066	500	500
1,2-Dichloropropane	63.00	7.462	7.462	(1.074)	191420	500	500
1,1-Dichloropropene	75.00	6.321	6.321	(1.084)	232864	500	500
cis-1,3-Dichloropropene	75.00	8.550	8.550	(1.231)	262581	500	500
trans-1,3-Dichloropropene	75.00	9.175	9.175	(1.321)	247511	500	510
Toluene	92.00	9.255	9.255	(1.333)	369048	500	500
1,1,2-Trichloroethane	83.00	9.344	9.344	(1.345)	131589	500	500
Trichloroethene	130.00	7.498	7.498	(1.080)	155595	500	500

ounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
3 Bromoform	173.00	12.037	12.037	(1.084)	109402	500	510
6 Dibromochloromethane	129.00	9.968	9.968	(0.898)	147816	500	500
9 Chlorobenzene	112.00	11.145	11.145	(1.004)	378843	500	500
106 1,3-Dichloropropane	76.00	9.665	9.665	(1.658)	265508	500	500
1 Methylbenzene	106.00	11.449	11.449	(1.031)	198202	500	500
4 Styrene	104.00	12.082	12.082	(1.088)	414939	500	510
78 1,1,1,2-Tetrachloroethane	131.00	11.208	11.208	(1.010)	131559	500	500
37 Tetrachloroethene	164.00	10.307	10.307	(0.928)	129488	500	490
5 m-Xylene	106.00	12.135	12.135	(1.093)	243660	500	510
2 m,p-Xylene(s)	106.00	11.618	11.618	(1.047)	492216	1000	1000
40 Xylene (Total)	106.00				735876	1500	1500
74 Bromobenzene	156.00	12.982	12.982	(0.897)	180427	500	490
4 n-Butylbenzene	91.00	15.212	15.212	(1.050)	564065	500	500
2 sec-Butylbenzene	105.00	14.106	14.106	(0.974)	532643	500	500
91 tert-Butylbenzene	119.00	14.088	14.088	(0.973)	482841	500	500
0 Chlorotoluene	91.00	13.339	13.339	(2.288)	1309881	500	500
1 4-Chlorotoluene	91.00	13.446	13.446	(2.306)	515922	500	510
08 1,2-Dibromo-3-Chloropropane	75.00	15.782	15.782	(2.707)	34400	500	510
97 2-Dichlorobenzene	146.00	14.971	14.971	(1.034)	308433	500	500
3 3-Dichlorobenzene	146.00	14.409	14.409	(0.995)	320454	500	500
1 1,4-Dichlorobenzene	146.00	14.516	14.516	(1.002)	326969	500	500
6 Hexachlorobutadiene	225.00	17.735	17.735	(1.225)	94935	500	510
47 Isopropylbenzene	105.00	12.759	12.759	(0.881)	590819	500	500
Isopropyltoluene	119.00	14.641	14.641	(1.011)	522605	500	500
Naphthalene	128.00	17.352	17.352	(1.198)	418544	500	520
38 Propylbenzene	91.00	13.339	13.339	(0.921)	1309881	500	500
1,2,2-Tetrachloroethane	83.00	12.483	12.483	(1.125)	198687	500	510
1,2,3-Trichlorobenzene	180.00	17.182	17.182	(1.187)	214847	500	510
3 1,2,4-Trichlorobenzene	180.00	17.798	17.798	(1.229)	194720	500	510
5 2,3-Trichloropropane	75.00	12.643	12.643	(2.168)	162330	500	500
2,4-Trimethylbenzene	105.00	14.106	14.106	(0.974)	532643	500	500
1,3,5-Trimethylbenzene	105.00	13.607	13.607	(0.940)	519106	500	500
2 Pentafluorobenzene	168.00	5.831	5.831	(1.000)	164374	250	
4 4-Difluorobenzene	114.00	6.945	6.945	(1.000)	226912	250	
lorobenzene-d5	117.00	11.101	11.101	(1.000)	183418	250	
1,4-Dichlorobenzene-d4	152.00	14.480	14.480	(1.000)	101427	250	
9 2-Dichloroethane-d4	102.00	6.009	6.009	(0.865)	36748	500	510
luene-d8	98.00	9.157	9.157	(1.318)	505469	500	510
Bromofluorobenzene	95.00	12.777	12.777	(1.840)	221286	500	510

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: 1.i  
Lab File ID: 1081iw3.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/1.i/1950322.b/18260w.m  
Lsc Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	164374	0.51
24 1,4-Difluorobenzene	224833	112416	449666	226912	0.92
38 Chlorobenzene-d5	182201	91100	364402	183418	0.67
48 1,4-Dichlorobenzene-	98492	49246	196984	101427	2.98

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.83	-0.17
24 1,4-Difluorobenzene	6.95	6.45	7.45	6.95	-0.02
38 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.01
48 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	-0.01

EA UPPER LIMIT = +100% of internal standard area.  
EA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950322.b/1081lw3.d

Date : 22-Nov-1995 16:25

Client ID:

Sample Info: 100 UG-L STD-0260M/1X

Purge Volume: 5.0

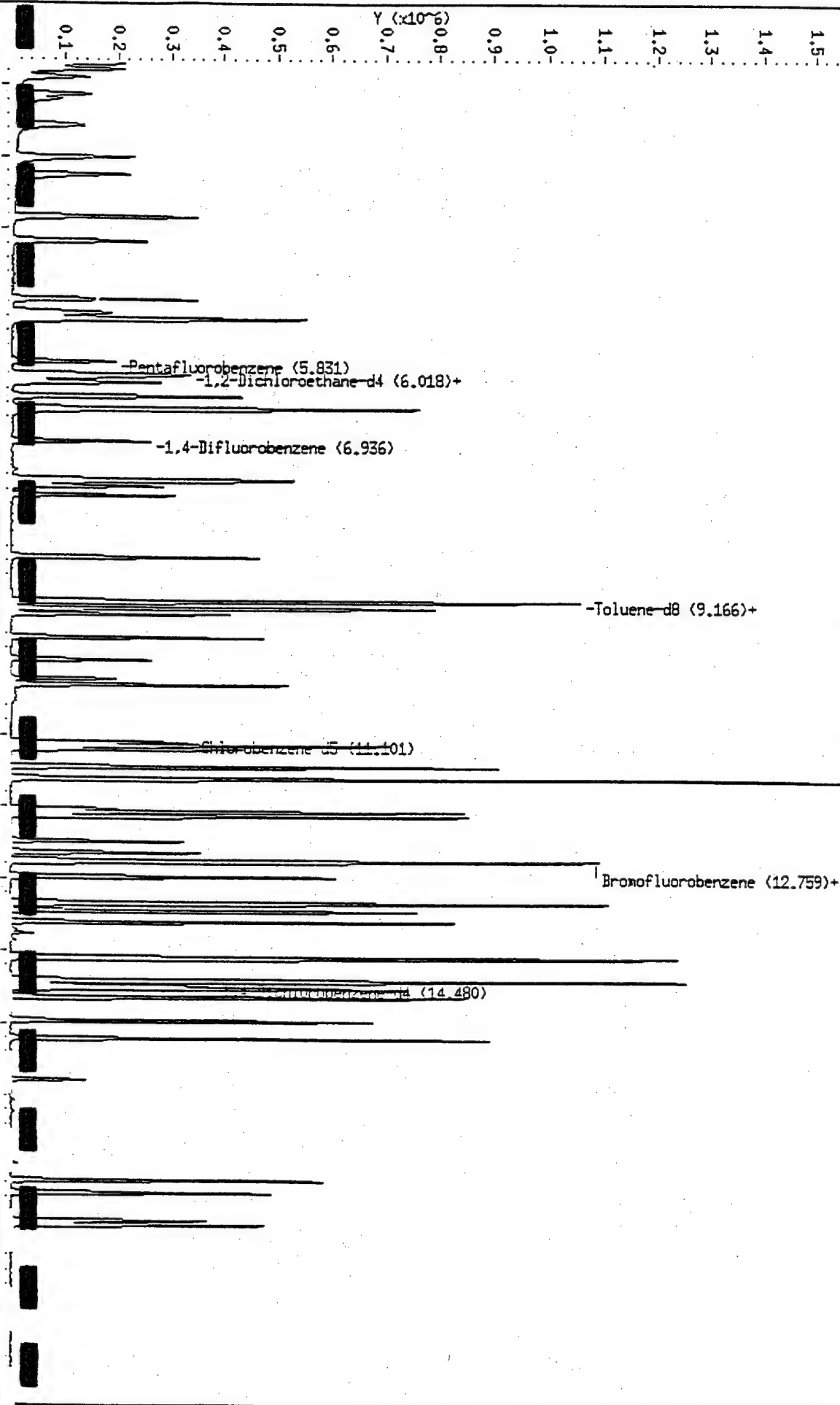
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950322.b/1081lw3.d



ta File: /chem/1.i/1950322.b/1081iw4.d  
port Date: 22-Mar-1995 17:51

Page 1

SPL Labs

Volatiles by 624/8240

ta file : /chem/1.i/1950322.b/1081iw4.d

b Smp Id:

j Date : 22-MAR-1995 16:54

erator : JC

Inst ID: 1.i

p Info : 150 UG-L STD-8260W/1X

sc Info : L081W2//L081CW2

mmment :

thod : /chem/1.i/1950322.b/18260w.m

ch Date : 22-Mar-1995 17:51 jimmy

l Date : 22-MAR-1995 15:57

s bottle: 5

Quant Type: ISTD

Cal File: 1081iw2.d

l Factor: 1.000

Calibration Sample, Level: 4

egrator: HP RTE

Compound Sublist: 8260.sub

get Version: 3.10

ounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
7 Bromochloromethane	128.00	5.233	5.233	(0.898)	130192	750	750
4 Bromomethane	94.00	2.130	2.130	(0.365)	213704	750	730
5 Chloroethane	64.00	2.192	2.192	(0.376)	164249	750	740
3 Chloroform	83.00	5.251	5.251	(0.901)	467515	750	740
1 Chloromethane	50.00	1.782	1.782	(0.306)	335927	750	720
0 Dichlorodifluoromethane	85.00	1.693	1.693	(0.290)	329402	750	750
1,1-Dichloroethane	63.00	4.172	4.172	(0.716)	511212	750	750
1,1-Dichloroethene	96.00	3.013	3.013	(0.517)	203685	750	740
cis-1,2-Dichloroethene	96.00	4.974	4.974	(0.853)	259437	750	750
trans-1,2-Dichloroethene	96.00	3.842	3.842	(0.659)	243518	750	760
1,2-Dichloroethene (total)	96.00				502955	1500	1500(A)
2,2-Dichloropropane	77.00	5.162	5.162	(0.885)	288202	750	740
Methylene Chloride	84.00	3.245	3.245	(0.556)	236750	750	750
1,1,1-Trichloroethane	97.00	6.036	6.036	(0.869)	352865	750	740
Trichlorofluoromethane	100.90	2.558	2.558	(0.439)	283827	750	790
Vinyl Chloride	62.00	1.889	1.889	(0.324)	244719	750	700
Benzene	78.00	6.482	6.482	(0.933)	1001375	750	730
Bromodichloromethane	83.00	7.685	7.685	(1.107)	342574	750	740
Carbon Tetrachloride	117.00	6.508	6.508	(0.937)	283152	750	750
1,2-Dibromoethane	107.00	10.227	10.227	(1.472)	235217	750	740
Dibromomethane	93.00	7.561	7.561	(1.297)	186036	750	760
1,2-Dichloroethane	62.00	6.125	6.125	(1.050)	412636	750	750
1,2-Dichloropropane	63.00	7.462	7.462	(1.074)	286039	750	730
1,1-Dichloropropene	75.00	6.312	6.312	(1.083)	359806	750	770
cis-1,3-Dichloropropene	75.00	8.550	8.550	(1.231)	400039	750	750
trans-1,3-Dichloropropene	75.00	9.175	9.175	(1.321)	378184	750	760
Toluene	92.00	9.264	9.264	(1.334)	564071	750	740
1,1,2-Trichloroethane	83.00	9.344	9.344	(1.345)	199838	750	740
Trichloroethene	130.00	7.498	7.498	(1.080)	240797	750	750

ounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS	
						CAL-AMT ( ng)	ON-COL ( ng)
1 Bromoform	173.00	12.037	12.037	(1.084)	171974	750	790
2 Dibromochloromethane	129.00	9.968	9.968	(0.898)	231751	750	770
3 Chlorobenzene	112.00	11.154	11.154	(1.005)	579635	750	750
4 1,3-Dichloropropane	76.00	9.665	9.665	(1.658)	404322	750	750
5 Ethylbenzene	106.00	11.449	11.449	(1.031)	304630	750	760
6 Styrene	104.00	12.082	12.082	(1.088)	638997	750	770
7 1,1,1,2-Tetrachloroethane	131.00	11.208	11.208	(1.010)	202876	750	750
8 Tetrachloroethene	164.00	10.307	10.307	(0.928)	201398	750	750
9 Xylene	106.00	12.144	12.144	(1.094)	371720	750	760
10 m,p-Xylene(s)	106.00	11.618	11.618	(1.047)	746492	1500	1500
11 Xylene (Total)	106.00				1118212	2200	2300
12 Bromobenzene	156.00	12.982	12.982	(0.897)	275947	750	750
13 n-Butylbenzene	91.00	15.212	15.212	(1.050)	865669	750	770
14 sec-Butylbenzene	105.00	14.106	14.106	(0.974)	804362	750	760
15 tert-Butylbenzene	119.00	14.088	14.088	(0.973)	741759	750	760
16 Chlorotoluene	91.00	13.339	13.339	(2.288)	2015053	750	770
17 Chlorotoluene	91.00	13.455	13.455	(2.308)	791764	750	770
18 1,2-Dibromo-3-Chloropropane	75.00	15.782	15.782	(2.707)	51978	750	760
19 1,2-Dichlorobenzene	146.00	14.971	14.971	(1.034)	470070	750	760
20 1,3-Dichlorobenzene	146.00	14.409	14.409	(0.995)	487588	750	760
21 1,4-Dichlorobenzene	146.00	14.516	14.516	(1.002)	497880	750	760
22 Hexachlorobutadiene	225.00	17.735	17.735	(1.225)	145492	750	780
23 Isopropylbenzene	105.00	12.759	12.759	(0.881)	902639	750	760
24 Isopropyltoluene	119.00	14.641	14.641	(1.011)	800562	750	770
25 Naphthalene	128.00	17.352	17.352	(1.198)	668759	750	820
26 n-Propylbenzene	91.00	13.339	13.339	(0.921)	2015053	750	760
27 1,2,2-Tetrachloroethane	83.00	12.483	12.483	(1.125)	287615	750	730
28 1,2,3-Trichlorobenzene	180.00	17.182	17.182	(1.187)	339314	750	810
29 1,2,4-Trichlorobenzene	180.00	17.798	17.798	(1.229)	307129	750	800
30 2,3-Trichloropropane	75.00	12.643	12.643	(2.168)	247345	750	760
31 2,4-Trimethylbenzene	105.00	14.106	14.106	(0.974)	804362	750	760
32 1,3,5-Trimethylbenzene	105.00	13.607	13.607	(0.940)	794766	750	760
33 Pentafluorobenzene	168.00	5.831	5.831	(1.000)	166036	250	
34 4-Difluorobenzene	114.00	6.945	6.945	(1.000)	233335	250	
35 Chlorobenzene-d5	117.00	11.101	11.101	(1.000)	187161	250	
36 1,4-Dichlorobenzene-d4	152.00	14.480	14.480	(1.000)	101596	250	
37 1,2-Dichloroethane-d4	102.00	6.009	6.009	(0.865)	54714	750	740
38 Toluene-d8	98.00	9.157	9.157	(1.318)	758302	750	740
39 Bromofluorobenzene	95.00	12.777	12.777	(1.840)	336337	750	750

# ag Legend

Target compound detected but, quantitated amount  
 exceeded maximum amount.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

strument ID: 1.i  
b File ID: l081iw4.d  
b Smp Id:  
alysis Type: VOA  
ant Type: ISTD  
erator: JC  
thod File: /chem/1.i/1950322.b/l8260w.m  
sc Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	166036	1.53
24 1,4-Difluorobenzene	224833	112416	449666	233335	3.78
38 Chlorobenzene-d5	182201	91100	364402	187161	2.72
48 1,4-Dichlorobenzene-	98492	49246	196984	101596	3.15

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.83	-0.17
24 1,4-Difluorobenzene	6.95	6.45	7.45	6.95	-0.02
38 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.01
48 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	-0.01

UPPER LIMIT = +100% of internal standard area.  
LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/1.1/1950322.b/10811w4.d

Date : 22-MAR-1995 16:54

Client ID:

Sample Info: 150 UG-L STD-82604/1X

Purge Volume: 5.0

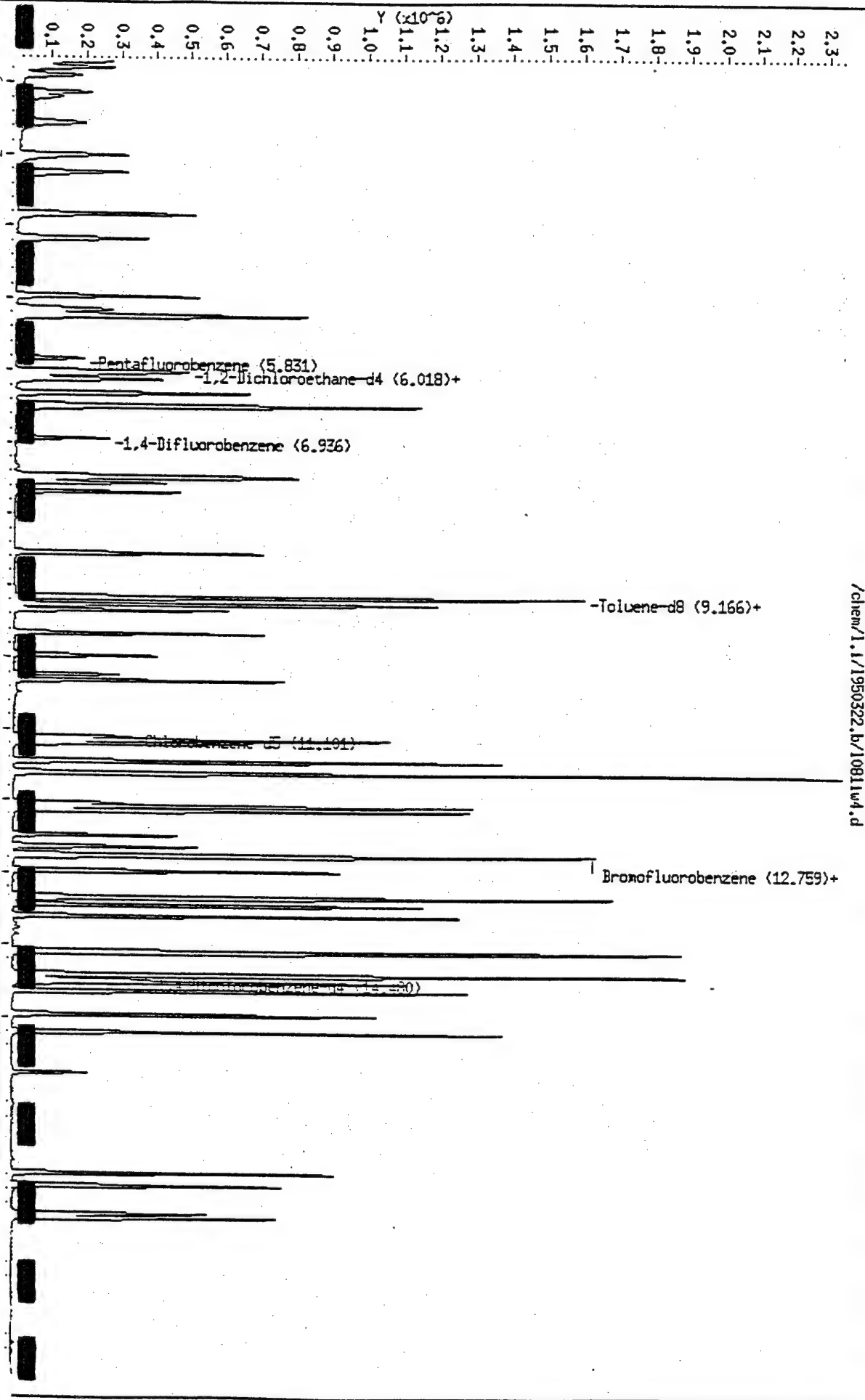
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

Page 4



File: /chem/1.i/1950322.b/1081iw5.d  
Port Date: 22-Mar-1995 17:51

Page 1

SPL Labs

Volatiles by 624/8240

File: /chem/1.i/1950322.b/1081iw5.d

Smp Id:

Date: 22-MAR-1995 17:22

Operator: JC

Inst ID: 1.i

Info: 200 UG-L STD-8260W/1X

SC Info: L081W2//L081CW2

Comment:

Method: /chem/1.i/1950322.b/18260w.m

Print Date: 22-Mar-1995 17:51 jimmy

Quant Type: ISTD

Date: 22-MAR-1995 15:57

Cal File: 1081iw2.d

Bottle: 6

Calibration Sample, Level: 5

Factor: 1.000

Integrator: HP RTE

Compound Sublist: 8260.sub

Get Version: 3.10

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
Bromochloromethane	128.00	5.233	5.233	(0.898)	176233	1000	980
Bromomethane	94.00	2.130	2.130	(0.365)	287687	1000	950
Chloroethane	64.00	2.192	2.192	(0.376)	221852	1000	960
Chloroform	83.00	5.251	5.251	(0.901)	641700	1000	980
Chloromethane	50.00	1.782	1.782	(0.306)	460508	1000	950
Dichlorodifluoromethane	85.00	1.693	1.693	(0.290)	458983	1000	1000
1,1-Dichloroethane	63.00	4.181	4.181	(0.717)	698752	1000	990
1,1-Dichloroethene	96.00	3.012	3.012	(0.517)	283050	1000	1000
cis-1,2-Dichloroethene	96.00	4.974	4.974	(0.853)	355455	1000	1000
trans-1,2-Dichloroethene	96.00	3.842	3.842	(0.659)	331260	1000	1000
1,2-Dichloroethene (total)	96.00				686715	2000	2000 (A)
2,2-Dichloropropane	77.00	5.162	5.162	(0.885)	392563	1000	980
Methylene Chloride	84.00	3.244	3.244	(0.556)	324734	1000	990
1,1,1-Trichloroethane	97.00	6.035	6.035	(0.869)	478488	1000	990
Trichlorofluoromethane	100.90	2.558	2.558	(0.439)	404964	1000	1100
Vinyl Chloride	62.00	1.889	1.889	(0.324)	318176	1000	880
Benzene	78.00	6.481	6.481	(0.933)	1366293	1000	990
Bromodichloromethane	83.00	7.685	7.685	(1.107)	474086	1000	1000
Carbon Tetrachloride	117.00	6.508	6.508	(0.937)	390625	1000	1000
1,2-Dibromoethane	107.00	10.236	10.236	(1.474)	325449	1000	1000
Dibromomethane	93.00	7.560	7.560	(1.297)	252867	1000	1000
1,2-Dichloroethane	62.00	6.125	6.125	(1.050)	558760	1000	980
1,2-Dichloropropane	63.00	7.462	7.462	(1.074)	392669	1000	1000
1,1-Dichloropropene	75.00	6.312	6.312	(1.083)	484875	1000	1000
cis-1,3-Dichloropropene	75.00	8.550	8.550	(1.231)	555940	1000	1000
trans-1,3-Dichloropropene	75.00	9.174	9.174	(1.321)	519206	1000	1000
Toluene	92.00	9.264	9.264	(1.334)	771429	1000	1000
1,1,2-Trichloroethane	83.00	9.344	9.344	(1.345)	271588	1000	990
Trichloroethene	130.00	7.498	7.498	(1.080)	320231	1000	990

ounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
4 Bromoform	173.00	12.037	12.037	(1.084)	240168	1000	1100
1 Dibromochloromethane	129.00	9.968	9.968	(0.898)	319581	1000	1000
9 Chlorobenzene	112.00	11.145	11.145	(1.004)	774531	1000	980
106 1,3-Dichloropropane	76.00	9.665	9.665	(1.658)	551516	1000	990
4 Ethylbenzene	106.00	11.448	11.448	(1.031)	418276	1000	1000
4 Styrene	104.00	12.082	12.082	(1.088)	876504	1000	1000
8 1,1,1,2-Tetrachloroethane	131.00	11.208	11.208	(1.010)	280220	1000	1000
37 Tetrachloroethene	164.00	10.307	10.307	(0.928)	275613	1000	1000
5 Xylene	106.00	12.135	12.135	(1.093)	509088	1000	1000
2 m,p-Xylene(s)	106.00	11.618	11.618	(1.047)	1019994	2000	2000
40 Xylene (Total)	106.00				1529082	3000	3000
14 Bromobenzene	156.00	12.982	12.982	(0.897)	382988	1000	1000
4 n-Butylbenzene	91.00	15.212	15.212	(1.050)	1199945	1000	1000
2 sec-Butylbenzene	105.00	14.106	14.106	(0.974)	1100319	1000	990
91 tert-Butylbenzene	119.00	14.088	14.088	(0.973)	1021683	1000	1000
80 Chlorotoluene	91.00	13.339	13.339	(2.288)	2747389	1000	1000
1 Chlorotoluene	91.00	13.455	13.455	(2.308)	1081923	1000	1000
8 1,2-Dibromo-3-Chloropropane	75.00	15.782	15.782	(2.707)	73510	1000	1000
37 1,2-Dichlorobenzene	146.00	14.971	14.971	(1.034)	643009	1000	990
15 3-Dichlorobenzene	146.00	14.409	14.409	(0.995)	667038	1000	990
5 4-Dichlorobenzene	146.00	14.516	14.516	(1.002)	687701	1000	1000
6 Hexachlorobutadiene	225.00	17.735	17.735	(1.225)	199312	1000	1000
37 Propylbenzene	105.00	12.759	12.759	(0.881)	1245760	1000	1000
1 Isopropyltoluene	119.00	14.641	14.641	(1.011)	1107945	1000	1000
1 Naphthalene	128.00	17.352	17.352	(1.198)	941299	1000	1100
38 N-Propylbenzene	91.00	13.339	13.339	(0.921)	2747389	1000	990
46 1,1,2,2-Tetrachloroethane	83.00	12.483	12.483	(1.125)	413848	1000	1000
1 2,3-Trichlorobenzene	180.00	17.182	17.182	(1.187)	472721	1000	1100
1,2,4-Trichlorobenzene	180.00	17.789	17.789	(1.228)	422586	1000	1000
5 1,2,3-Trichloropropane	75.00	12.643	12.643	(2.169)	337282	1000	1000
0 2,4-Trimethylbenzene	105.00	14.106	14.106	(0.974)	1100319	1000	990
3,5-Trimethylbenzene	105.00	13.606	13.606	(0.940)	1091192	1000	1000
1 Pentafluorobenzene	168.00	5.830	5.830	(1.000)	171820	250	
4 1,4-Difluorobenzene	114.00	6.945	6.945	(1.000)	236187	250	
1 Chlorobenzene-d5	117.00	11.101	11.101	(1.000)	192234	250	
1,4-Dichlorobenzene-d4	152.00	14.480	14.480	(1.000)	106693	250	
9 1,2-Dichloroethane-d4	102.00	6.009	6.009	(0.865)	73043	1000	980
2 Fluene-d8	98.00	9.157	9.157	(1.318)	1034245	1000	1000
1 Bromofluorobenzene	95.00	12.777	12.777	(1.840)	454943	1000	1000

# Flag Legend

Target compound detected but, quantitated amount exceeded maximum amount.

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

strument ID: 1.i  
b File ID: 1081iw5.d  
b Smp Id:  
alysis Type: VOA  
ant Type: ISTD  
erator: JC  
thod File: /chem/1.i/1950322.b/18260w.m  
sc Info: L081W2//L081CW2

Calibration Date: 03/22/95  
Calibration Time: 1557

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	163532	81766	327064	171820	5.07
24 1,4-Difluorobenzene	224833	112416	449666	236187	5.05
38 Chlorobenzene-d5	182201	91100	364402	192234	5.51
48 1,4-Dichlorobenzene-	98492	49246	196984	106693	8.33

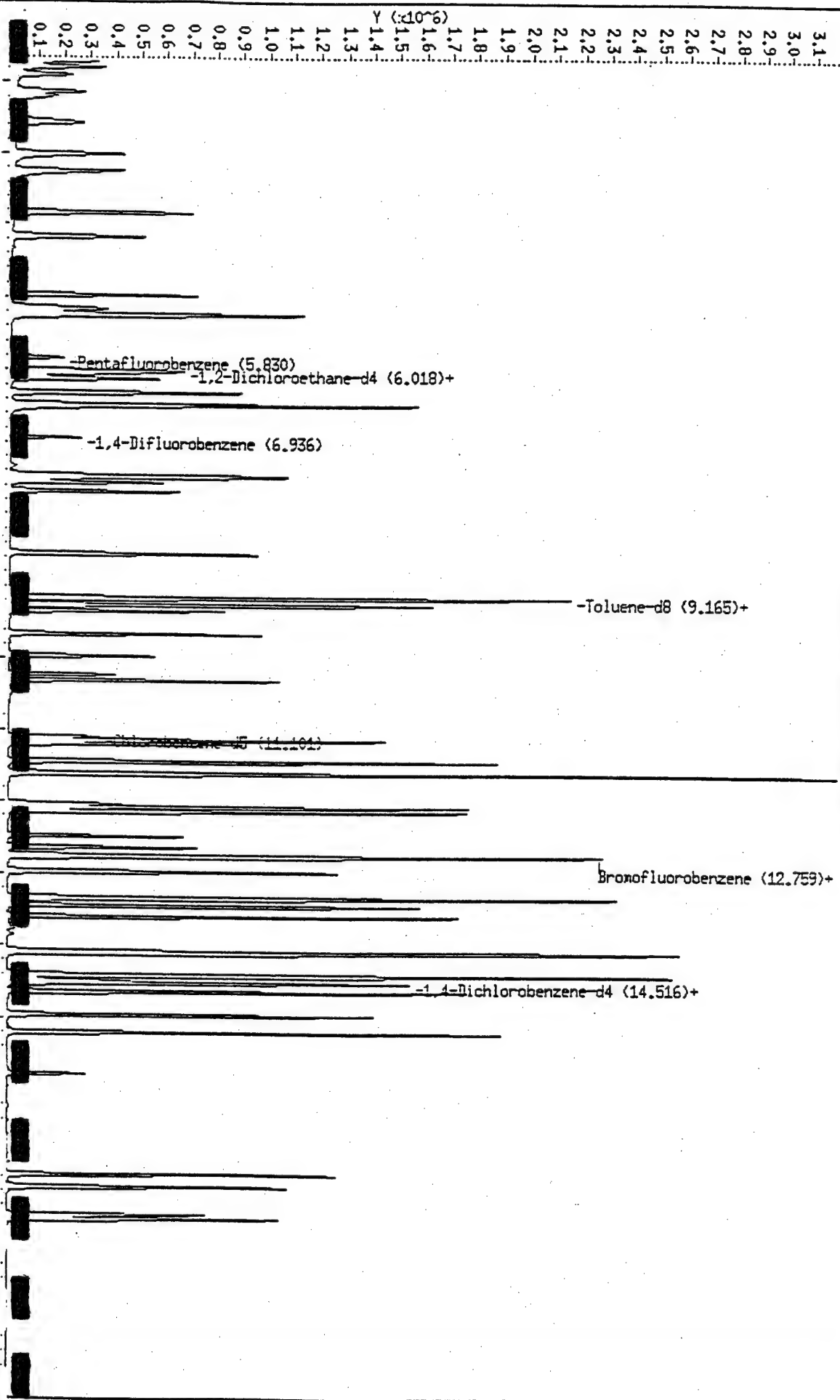
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.84	5.34	6.34	5.83	-0.18
24 1,4-Difluorobenzene	6.95	6.45	7.45	6.95	-0.02
38 Chlorobenzene-d5	11.10	10.60	11.60	11.10	-0.01
48 1,4-Dichlorobenzene-	14.48	13.98	14.98	14.48	-0.01

IA UPPER LIMIT = +100% of internal standard area.  
IA LOWER LIMIT = - 50% of internal standard area.  
UPPER LIMIT = + 0.50 minutes of internal standard RT.  
LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950322.b/10811u5.d  
Date : 22-MAR-1995 17:22  
Client ID:  
Sample Info: 200 UC-1 STD-8260M/1X  
Purge Volume: 5.0  
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1  
Operator: JC  
Column diameter: 0.25

/chem/1.1/1950322.b/10811u5.d



SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 1.i Injection Date: 24-MAY-1995 20:04  
Lab File ID: 1144cw3.d Init. Calibration Date(s): 03/22/95 03/22/95  
Analysis Type: WATER Init. Calibration Times: 15:28 17:22  
Lab Sample ID: Method File: /chem/1.i/1950524.b/18260w.m  
Quant Type: ISTD

COMPOUND	RRF	RF250	MIN RRF	%D	MAX %D
17 Bromochloromethane	0.261	0.233	0.010	10.5	40.0
4 Bromomethane	0.439	0.377	0.100	14.1	40.0
5 Chloroethane	0.335	0.329	0.010	1.9	40.0
18 Chloroform	0.947	0.876	0.200	7.5	25.0
1 Chloromethane	0.705	0.679	0.300	3.7	40.0
60 Dichlorodifluoromethane	0.660	0.495	0.010	25.0	40.0
12 1,1-Dichloroethane	1.029	0.829	0.300	19.4	40.0
8 1,1-Dichloroethene	0.412	0.366	0.100	11.2	25.0
16 cis-1,2-Dichloroethene	0.518	0.489	0.010	5.6	40.0
11 trans-1,2-Dichloroethene	0.482	0.383	0.010	20.5	40.0
M 13 1,2-Dichloroethene (total)	0.500	0.436	0.010	12.8	40.0
74 2,2-Dichloropropane	0.584	0.594	0.010	1.6	40.0
9 Methylene Chloride	0.477	0.404	0.010	15.4	40.0
20 1,1,1-Trichloroethane	0.512	0.551	0.100	7.6	40.0
6 Trichlorofluoromethane	0.543	0.528	0.010	2.7	40.0
3 Vinyl Chloride	0.526	0.562	0.100	6.8	25.0
22 Benzene	1.461	1.410	0.100	3.5	40.0
27 Bromodichloromethane	0.493	0.474	0.200	4.0	40.0
23 Carbon Tetrachloride	0.404	0.427	0.100	5.7	40.0
84 1,2-Dibromoethane	0.341	0.353	0.010	3.6	40.0
112 Dibromomethane	0.369	0.363	0.010	1.6	40.0
21 1,2-Dichloroethane	0.828	0.871	0.100	5.2	40.0
25 1,2-Dichloropropane	0.417	0.427	0.010	2.4	25.0
115 1,1-Dichloropropene	0.705	0.667	0.010	5.4	40.0
30 cis-1,3-Dichloropropene	0.574	0.573	0.100	0.2	40.0
31 trans-1,3-Dichloropropene	0.536	0.541	0.100	0.8	40.0
33 Toluene	0.811	0.799	0.400	1.4	25.0
34 1,1,2-Trichloroethane	0.291	0.275	0.100	5.3	40.0
26 Trichloroethene	0.343	0.332	0.100	3.1	40.0
43 Bromoform	0.292	0.267	0.250	8.7	40.0
36 Dibromochloromethane	0.402	0.371	0.100	7.6	40.0
39 Chlorobenzene	1.027	1.051	0.300	2.3	40.0
106 1,3-Dichloropropane	0.808	0.740	0.010	8.3	40.0
41 Ethylbenzene	0.536	0.548	0.100	2.3	25.0
44 Styrene	1.104	1.101	0.300	0.3	40.0
78 1,1,1,2-Tetrachloroethane	0.360	0.349	0.010	3.1	40.0
37 Tetrachloroethene	0.359	0.396	0.200	10.2	40.0
45 o-Xylene	0.656	0.663	0.300	1.0	40.0
42 m,p-Xylene(s)	0.662	0.664	0.300	0.3	40.0
M 40 Xylene (Total)	0.660	0.663	0.300	0.5	40.0

SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 1.i  
Lab File ID: 1144cw3.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 24-MAY-1995 20:04  
Init. Calibration Date(s): 03/22/95 03/22/95  
Init. Calibration Times: 15:28 17:22  
Method File: /chem/1.i/1950524.b/18260w.m

COMPOUND	RRF	RF250	MIN	MAX
			RRF	%D
114 Bromobenzene	0.901	1.002	0.010	11.2
94 n-Butylbenzene	2.756	2.356	0.010	14.5
92 sec-Butylbenzene	2.606	2.624	0.010	0.7
91 tert-Butylbenzene	2.395	2.319	0.010	3.2
80 2-Chlorotoluene	3.938	3.508	0.010	10.9
81 4-Chlorotoluene	1.547	1.420	0.010	8.2
108 1,2-Dibromo-3-Chloropropane	0.103	0.079	0.010	23.5
97 1,2-Dichlorobenzene	1.516	1.494	0.010	1.4
95 1,3-Dichlorobenzene	1.577	1.554	0.010	1.5
96 1,4-Dichlorobenzene	1.616	1.596	0.010	1.2
116 Hexachlorobutadiene	0.462	0.371	0.010	19.7
87 Isopropylbenzene	2.919	3.044	0.010	4.3
93 p-Isopropyltoluene	2.564	2.357	0.010	8.1
117 Naphthalene	2.003	1.792	0.010	10.5
88 N-Propylbenzene	6.514	6.359	0.010	2.4
46 1,1,2,2-Tetrachloroethane	0.529	0.482	0.300	8.8
118 1,2,3-Trichlorobenzene	1.035	0.982	0.010	5.1
98 1,2,4-Trichlorobenzene	0.939	0.846	0.010	9.9
75 1,2,3-Trichloropropane	0.492	0.447	0.010	9.2
90 1,2,4-Trimethylbenzene	2.606	2.624	0.010	0.7
89 1,3,5-Trimethylbenzene	2.555	2.624	0.010	2.7
\$ 19 1,2-Dichloroethane-d4	0.079	0.077	0.010	2.1
\$ 32 Toluene-d8	1.091	1.081	0.010	0.9
\$ 47 Bromofluorobenzene	0.479	0.463	0.010	3.2

Data File: /chem/1.i/1950524.b/l144cw3.d  
Report Date: 24-May-1995 20:31

Page 1

SPL Labs

Volatiles by 624/8240

Data file : /chem/1.i/1950524.b/l144cw3.d  
Lab Smp Id:   
Inj Date : 24-MAY-1995 20:04  
Operator : JC  
Smp Info : 50 UG-L STD-8260W/1X  
Misc Info : L144W2//L144CW3  
Comment :   
Method : /chem/1.i/1950524.b/l8260w.m  
Meth Date : 24-May-1995 20:31 jimmy  
Cal Date : 24-MAY-1995 20:04  
Als bottle: 10  
Dil Factor: 1.000  
Integrator: HP RTE  
Target Version: 3.10

Inst ID: 1.i

Quant Type: ISTD  
Cal File: l144cw3.d  
Continuing Calibration Sample

Compound Sublist: 8260.sub

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
17 Bromochloromethane	128.00	5.232	5.232	(0.899)	42921	250	220
4 Bromomethane	94.00	2.130	2.130	(0.366)	69387	250	210
5 Chloroethane	64.00	2.201	2.201	(0.378)	60581	250	240
18 Chloroform	83.00	5.241	5.241	(0.900)	161268	250	230
1 Chloromethane	50.00	1.791	1.791	(0.308)	124984	250	240
60 Dichlorodifluoromethane	85.00	1.711	1.711	(0.294)	91137	250	190
12 1,1-Dichloroethane	63.00	4.171	4.171	(0.717)	152593	250	200
8 1,1-Dichloroethene	96.00	3.012	3.012	(0.518)	67313	250	220
16 cis-1,2-Dichloroethene	96.00	4.964	4.964	(0.853)	90009	250	240
11 trans-1,2-Dichloroethene	96.00	3.832	3.832	(0.658)	70547	250	200
13 1,2-Dichloroethene (total)	96.00				160556	500	440
74 2,2-Dichloropropane	77.00	5.161	5.161	(0.887)	109245	250	250
9 Methylene Chloride	84.00	3.244	3.244	(0.557)	74301	250	210
20 1,1,1-Trichloroethane	97.00	6.034	6.034	(0.871)	131999	250	270
6 Trichlorofluoromethane	100.90	2.558	2.558	(0.439)	97195	250	240
3 Vinyl Chloride	62.00	1.898	1.898	(0.326)	103359	250	270
22 Benzene	78.00	6.471	6.471	(0.934)	337802	250	240
27 Bromodichloromethane	83.00	7.674	7.674	(1.108)	113541	250	240
23 Carbon Tetrachloride	117.00	6.498	6.498	(0.938)	102375	250	260
84 1,2-Dibromoethane	107.00	10.233	10.233	(1.478)	84648	250	260
112 Dibromomethane	93.00	7.549	7.549	(1.297)	66844	250	250
21 1,2-Dichloroethane	62.00	6.105	6.105	(1.049)	160405	250	260
25 1,2-Dichloropropane	63.00	7.451	7.451	(1.076)	102342	250	260
115 1,1-Dichloropropene	75.00	6.302	6.302	(1.083)	122714	250	240
30 cis-1,3-Dichloropropene	75.00	8.539	8.539	(1.233)	137354	250	250
31 trans-1,3-Dichloropropene	75.00	9.172	9.172	(1.324)	129625	250	250
33 Toluene	92.00	9.252	9.252	(1.336)	191593	250	250
34 1,1,2-Trichloroethane	83.00	9.341	9.341	(1.349)	65949	250	240
26 Trichloroethene	130.00	7.487	7.487	(1.081)	79635	250	240



ounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
-----	----	---	-----	-----	-----	-----	-----
43 Bromoform	173.00	12.033	12.033	(1.083)	51178	250	230
5 Dibromochloromethane	129.00	9.965	9.965	(0.897)	71228	250	230
6 Chlorobenzene	112.00	11.151	11.151	(1.004)	201655	250	260
106 1,3-Dichloropropane	76.00	9.662	9.662	(1.660)	136262	250	230
1 Ethylbenzene	106.00	11.454	11.454	(1.031)	105240	250	260
Styrene	104.00	12.087	12.087	(1.088)	211308	250	250
78 1,1,1,2-Tetrachloroethane	131.00	11.204	11.204	(1.009)	66977	250	240
37 Tetrachloroethene	164.00	10.313	10.313	(0.929)	76042	250	280
o-Xylene	106.00	12.140	12.140	(1.093)	127164	250	250
m,p-Xylene(s)	106.00	11.623	11.623	(1.047)	254843	500	500
40 Xylene (Total)	106.00				382007	750	750
114 Bromobenzene	156.00	12.987	12.987	(0.896)	101699	250	280
n-Butylbenzene	91.00	15.224	15.224	(1.050)	239179	250	210
sec-Butylbenzene	105.00	14.110	14.110	(0.974)	266423	250	250
91 tert-Butylbenzene	119.00	14.092	14.092	(0.972)	235430	250	240
2-Chlorotoluene	91.00	13.344	13.344	(2.293)	645697	250	220
4-Chlorotoluene	91.00	13.459	13.459	(2.313)	261431	250	230
1,2-Dibromo-3-Chloropropane	75.00	15.795	15.795	(2.714)	14519	250	190
97 1,2-Dichlorobenzene	146.00	14.975	14.975	(1.033)	151745	250	250
1,3-Dichlorobenzene	146.00	14.413	14.413	(0.994)	157831	250	250
1,4-Dichlorobenzene	146.00	14.529	14.529	(1.002)	162108	250	250
16 Hexachlorobutadiene	225.00	17.747	17.747	(1.224)	37656	250	200
87 Isopropylbenzene	105.00	12.764	12.764	(0.881)	309107	250	260
p-Isopropyltoluene	119.00	14.654	14.654	(1.011)	239358	250	230
Naphthalene	128.00	17.364	17.364	(1.198)	181981	250	220
88 N-Propylbenzene	91.00	13.344	13.344	(0.921)	645697	250	240
46 1,1,1,2,2-Tetrachloroethane	83.00	12.488	12.488	(1.124)	92592	250	230
1,2,3-Trichlorobenzene	180.00	17.194	17.194	(1.186)	99737	250	240
1,2,4-Trichlorobenzene	180.00	17.809	17.809	(1.229)	85865	250	220
75 1,2,3-Trichloropropane	75.00	12.648	12.648	(2.173)	82294	250	230
1,2,4-Trimethylbenzene	105.00	14.110	14.110	(0.974)	266423	250	250
1,3,5-Trimethylbenzene	105.00	13.611	13.611	(0.939)	266483	250	260
2 Pentafluorobenzene	168.00	5.820	5.820	(1.000)	184068	250	
24 1,4-Difluorobenzene	114.00	6.925	6.925	(1.000)	239653	250	
Chlorobenzene-d5	117.00	11.106	11.106	(1.000)	191926	250	
1,4-Dichlorobenzene-d4	152.00	14.493	14.493	(1.000)	101540	250	
19 1,2-Dichloroethane-d4	102.00	5.990	5.990	(0.865)	18494	250	240
32 Toluene-d8	98.00	9.154	9.154	(1.322)	259148	250	250
Bromofluorobenzene	95.00	12.782	12.782	(1.846)	111041	250	240

SPL Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: l.i  
Lab File ID: l144cw3.d  
Lab Smp Id:  
Analysis Type: VOA  
Quant Type: ISTD  
Operator: JC  
Method File: /chem/l.i/l950524.b/l8260w.m  
Misc Info: L144W2//L144CW3

Calibration Date: 05/24/95  
Calibration Time: 1935

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	176785	88392	353570	184068	4.12
24 1,4-Difluorobenzene	221248	110624	442496	239653	8.32
38 Chlorobenzene-d5	184507	92254	369014	191926	4.02
48 1,4-Dichlorobenzene-	101512	50756	203024	101540	0.03

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.83	5.33	6.33	5.82	-0.15
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	-0.13
38 Chlorobenzene-d5	11.11	10.61	11.61	11.11	0.00
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.49	0.00

REA UPPER LIMIT = +100% of internal standard area.  
REA LOWER LIMIT = - 50% of internal standard area.  
T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
T LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/1.1/1950524.b/1144cu3.d  
Date : 24-MAY-1995 20:04

Client ID:

Sample Info: 50 UG-L STD-8260M/1X

Purge Volume: 5.0

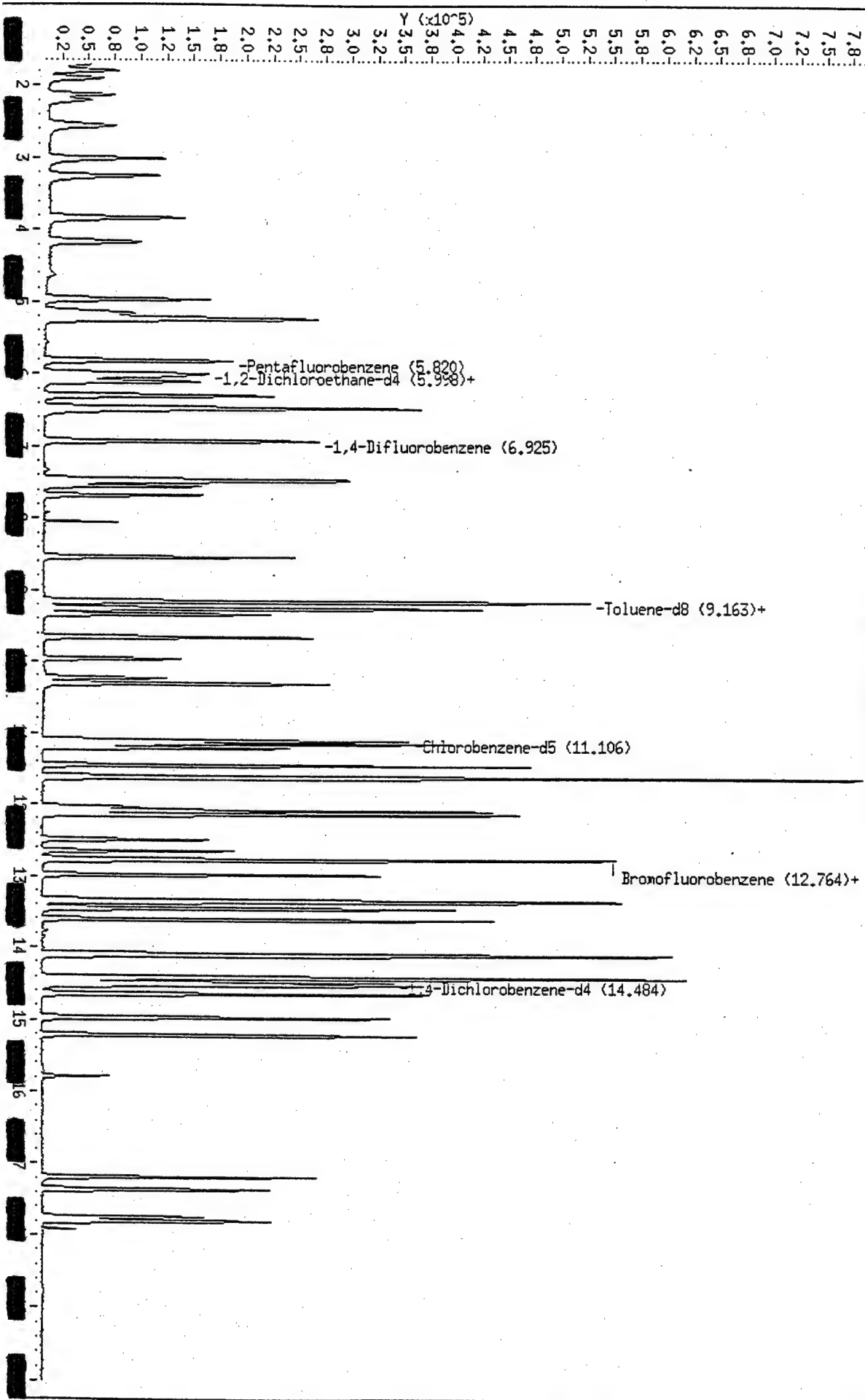
Column phase: 30m, hp5ms, 0.25u df

Instrument: 1.1

Operator: JC

Column diameter: 0.25

/chem/1.1/1950524.b/1144cu3.d



SPL Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: 1.i  
 Lab File ID: 1144s10.d  
 Lab Smp Id:

Calibration Date: 05/24/95  
 Calibration Time: 2004

Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: JC

Level: LOW  
 Sample Type: WATER

Method File: /chem/1.i/1950524.b/18260w.m  
 Misc Info: L144W2/L144B03/L144CW3

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	184068	92034	368136	205422	11.60
24 1,4-Difluorobenzene	239653	119826	479306	258467	7.85
38 Chlorobenzene-d5	191926	95963	383852	206228	7.45
48 1,4-Dichlorobenzene-	101540	50770	203080	105832	4.23

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
2 Pentafluorobenzene	5.82	5.32	6.32	5.81	-0.11
24 1,4-Difluorobenzene	6.93	6.43	7.43	6.93	0.04
38 Chlorobenzene-d5	11.11	10.61	11.61	11.10	-0.06
48 1,4-Dichlorobenzene-	14.49	13.99	14.99	14.49	-0.04

REA UPPER LIMIT = +100% of internal standard area.  
 REA LOWER LIMIT = - 50% of internal standard area.  
 T UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 T LOWER LIMIT = - 0.50 minutes of internal standard RT.

3A  
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL HOUSTON

Contract: \_\_\_\_\_

Lab Code: SPL Case No.: BLANK SAS No.: \_\_\_\_\_ SDG NO.: 505767

Matrix Spike - EPA Sample No.: BLK02

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC#	QC LIMIT REC.
Phenol	75	0	42	56	12-110
2-Chlorophenol	75	0	47	63	27-123
1,4-Dichlorobenzene	50	0	31	62	36- 97
N-Nitroso-di-n-propylamin	50	0	23	46	41-116
1,2,4-Trichlorobenzene	50	0	33	66	39- 98
4-Chloro-3-methylphenol	75	0	44	59	23- 97
Acenaphthene	50	0	35	70	46-118
4-Nitrophenol	75	0	41	55	10- 80
2,4-Dinitrotoluene	50	0	32	64	24- 96
Pentachlorophenol	75	0	14	19	9-103
Pyrene	50	0	29	58	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC#	% RPD	QC LIMIT =====	
					RPD	REC.
Phenol	75	46	61	9	42	12-110
2-Chlorophenol	75	48	64	2	40	27-123
1,4-Dichlorobenzene	50	31	62	0	28	36- 97
N-Nitroso-di-n-propylamin	50	32	64	33	38	41-116
1,2,4-Trichlorobenzene	50	32	64	3	28	39- 98
4-Chloro-3-methylphenol	75	49	65	10	42	23- 97
Acenaphthene	50	34	68	3	31	46-118
4-Nitrophenol	75	42	56	2	50	10- 80
2,4-Dinitrotoluene	50	32	64	0	38	24- 96
Pentachlorophenol	75	14	19	0	50	9-103
Pyrene	50	28	56	4	31	26-127

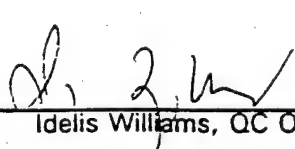
# Column to be used to flag recovery and RPD values with an asterisk

\* Values outside of QC Limits

RPD: 0 out of 11 outside limits

Spike Recovery: 0 out of 22 outside limits

FORM III SV - 1

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 1

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950522041714

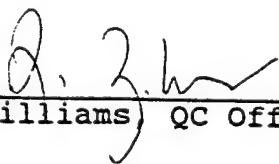
Reported on: 06/05/95 11:32  
Analyzed on: 05/26/95 15:48  
Analyst: PC

METHOD 8270/625. J142B01

Compound	Result	Detection Limit	Units
Pyridine	ND	5	ug/L
Phenol	ND	5	ug/L
Aniline	ND	5	ug/L
bis(2-Chloroethyl) ether	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
bis(2-chloroisopropyl) ethe	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
N-Nitroso-di-n-propylamine	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Nitrobenzene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Nitrophenol	ND	25	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Benzoic acid	ND	25	ug/L
bis(2-Chloroethoxy) methane	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
Naphthalene	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
4-Chloro-3-methylphenol	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
Dimethylphthalate	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams QC Officer

## SPL Blank QC Report

page 2

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950522041714

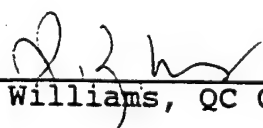
Reported on: 06/05/95 11:32  
Analyzed on: 05/26/95 15:48  
Analyst: PC

METHOD 8270/625 . J142B01

Compound	Result	Detection Limit	Units
Acenaphthylene	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
Acenaphthene	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
Dibenzofuran	ND	5	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
4-Chlorophenyl-phenylether	ND	5	ug/L
Fluorene	ND	5	ug/L
4-Nitroaniline	ND	25	ug/L
4,6-Dinitro-2-methylphenol	ND	25	ug/L
n-Nitrosodiphenylamine	ND	5	ug/L
1,2-Diphenylhydrazine	ND	5	ug/L
4-Bromophenyl-phenylether	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Anthracene	ND	5	ug/L
Carbazole	ND	5	ug/L
Di-n-butylphthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Pyrene	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	5	ug/L
Benzo[a]anthracene	ND	5	ug/L
Chrysene	ND	5	ug/L
bis(2-Ethylhexyl)phthalate	ND	5	ug/L
Di-n-octylphthalate	ND	5	ug/L
Benzo[b]fluoranthene	ND	5	ug/L
Benzo[k]fluoranthene	ND	5	ug/L
Benzo[a]pyrene	ND	5	ug/L
Indeno[1,2,3-cd]pyrene	ND	5	ug/L
Dibenz[a,h]anthracene	ND	5	ug/L

Notes

ND - Not detected.

  
Idelis Williams, QC Officer

## SPL Blank QC Report

page 3

Matrix: Aqueous  
Sample ID: BLANK  
Batch: E950522041714

Reported on: 06/05/95 11:32  
Analyzed on: 05/26/95 15:48  
Analyst: PC

METHOD 8270/625 - J142B01

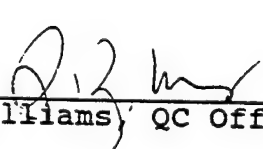
C o m p o u n d	Result	Detection Limit	Units
Benzo[g,h,i]perylene	ND	5	ug/L

S u r r o g a t e	Result	QC Criteria	Units
2-Fluorophenol	83	21-110	% Recovery
Phenol-d5	74	10-110	% Recovery
Nitrobenzene-d5	76	35-114	% Recovery
2-Fluorobiphenyl	69	43-116	% Recovery
2,4,6-Tribromophenol	64	10-123	% Recovery
Terphenyl-d14	79	33-141	% Recovery

Samples in Batch 9505767-01 9505767-02 9505767-05 9505767-06

Notes

ND - Not detected.

  
Idelis Williams, QC Officer



File: /chem/j.i/j950526.b/j142b01.d  
Port Date: 26-May-1995 16:43

Page 1

SPL Houston Labs

File: /chem/j.i/j950526.b/j142b01.d

Lab Smp Id:

Date: 26-MAY-1995 15:48

Operator: PC PC

Inst ID: j.i

Sample Info: BLANK-8270W/1X

Spec Info: E142C1/J142B01/J146CC1

Element:

Method: /chem/j.i/j950526.b/jclpw.m

Acq Date: 26-May-1995 16:37 patti

Quant Type: ISTD

Acq Date: 26-MAY-1995 15:03

Cal File: j146cc1.d

Bottle: 1

Cal Factor: 1.000

Integrator: HP RTE

Compound Sublist: BLK.sub

Get Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS					
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)
2-Fluorophenol	112.00	5.511	5.523	(0.715)	1124528	120	62
4 Phenol-d5	99.00	7.123	7.123	(0.924)	1560748	110	56
1,4-Dichlorobenzene-d4	152.00	7.712	7.701	(1.000)	370297	40	
Nitrobenzene-d5	82.00	8.910	8.913	(0.851)	929133	76	38
2 Naphthalene-d8	136.00	10.476	10.472	(1.000)	1237294	40	
2-Fluorobiphenyl	172.00	13.106	13.101	(0.891)	1628431	69	35
Acenaphthene-d10	164.00	14.716	14.706	(1.000)	692710	40	
2,4,6-Tribromophenol	329.70	16.682	16.684	(0.911)	280640	96	48
Phenanthrene-d10	188.00	18.314	18.311	(1.000)	1026801	40	
Terphenyl-d14	244.00	22.290	22.270	(0.894)	1789430	79	39
Chrysene-d12	240.00	24.922	24.930	(1.000)	866569	40	
3 Perylene-d12	264.00	29.256	29.251	(1.000)	576932	40	

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: j.i  
 Lab File ID: j142b01.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: PC  
 Method File: /chem/j.i/j950526.b/jclpw.m  
 Disc Info: E142C1/J142B01/J146CC1

Calibration Date: 05/26/95  
 Calibration Time: 1503

Level: LOW  
 Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	330816	165408	661632	370297	11.93
32 Naphthalene-d8	1173298	586649	2346596	1237294	5.45
48 Acenaphthene-d10	628204	314102	1256408	692710	10.27
65 Phenanthrene-d10	927125	463562	1854250	1026801	10.75
76 Chrysene-d12	703759	351880	1407518	866569	23.13
83 Perylene-d12	450683	225342	901366	576932	28.01

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	7.70	7.20	8.20	7.71	0.14
32 Naphthalene-d8	10.47	9.97	10.97	10.48	0.04
48 Acenaphthene-d10	14.71	14.21	15.21	14.72	0.07
65 Phenanthrene-d10	18.31	17.81	18.81	18.31	0.01
76 Chrysene-d12	24.93	24.43	25.43	24.92	-0.03
83 Perylene-d12	29.25	28.75	29.75	29.26	0.02

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/J.1/J950526.b/J142b01.d

Date : 26-MAY-1995 15:48

Client ID:

Sample Info: BLANK-8270M/1X

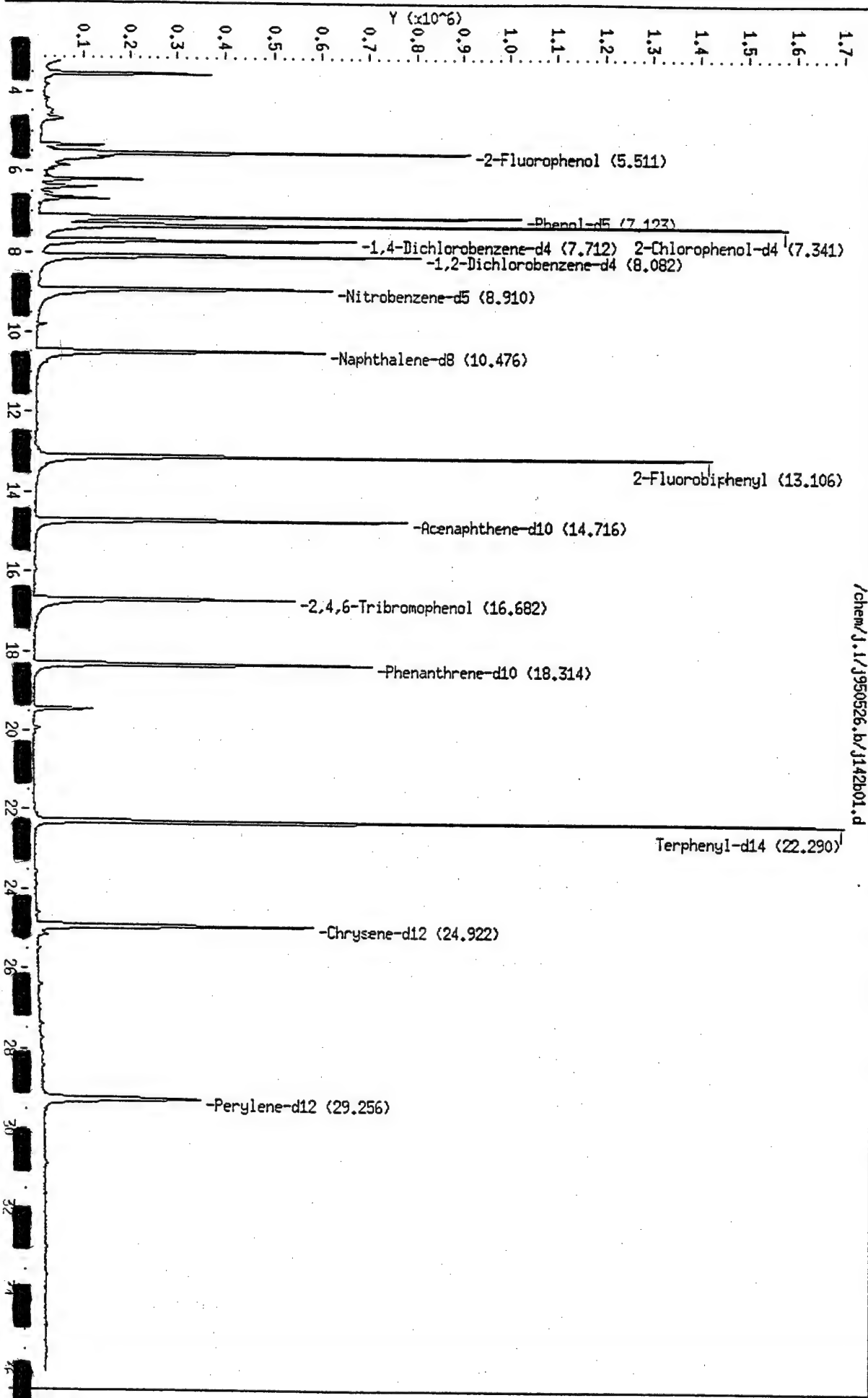
Volume Injected (uL): 2.0

Column phase:

Instrument: J.1

Operator: PC

Column diameter: 0.25

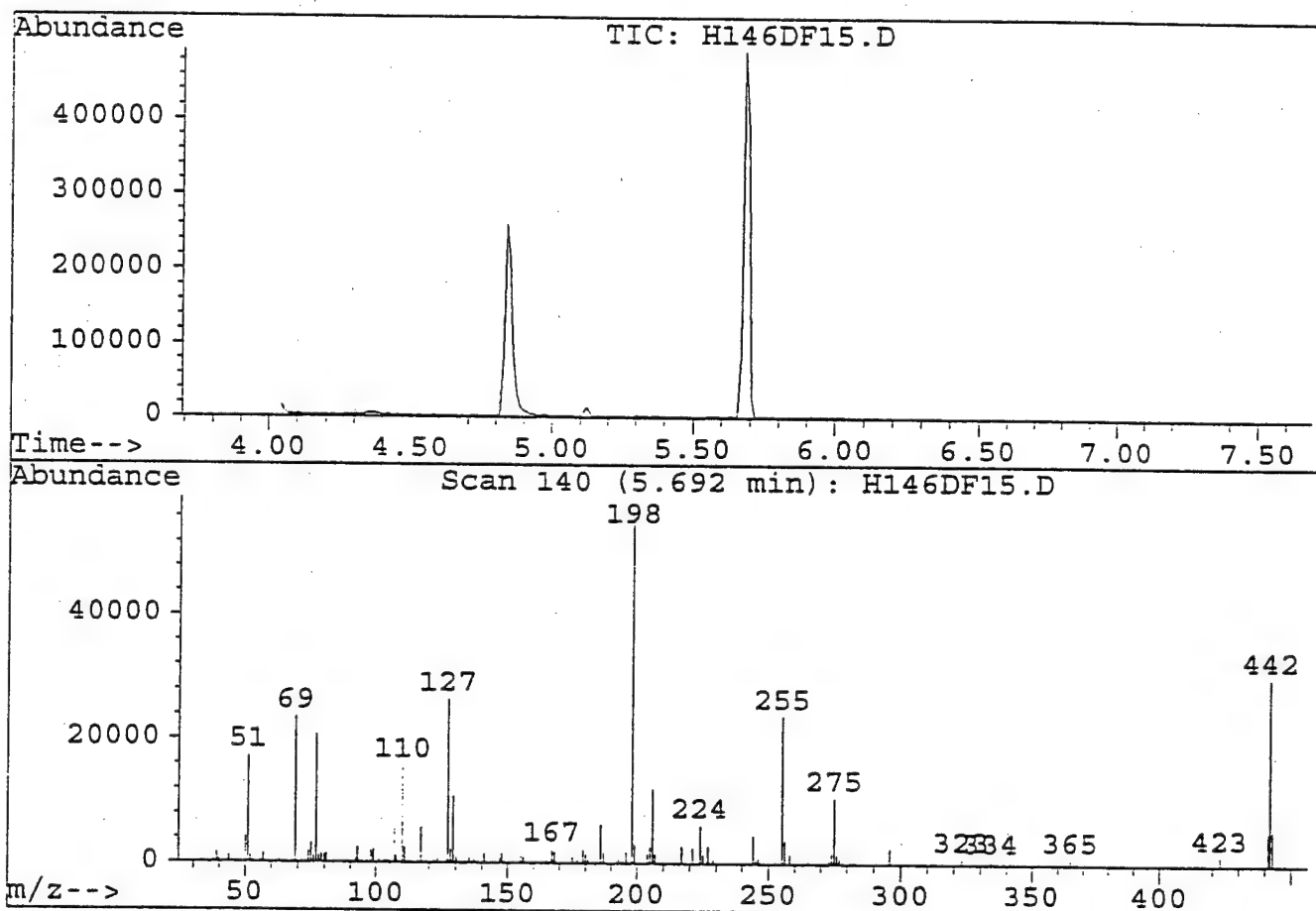


## DFTPP

Data File : C:\HPCHEM\1\DATA\H950526\H146DF15.D  
Acq On : 26 May 95 1:30 pm  
Sample : 50 NG DFTPP  
Misc : 950526 50NG DFTPP

Vial: 1  
Operator: LH  
Inst : h  
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\ENVDEF.M  
Title :



Peak Apex is scan: 140

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	30.5	17184	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	41.8	23528	PASS
70	69	0	2	0.0	0	PASS
127	198	40	60	47.0	26440	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	56280	PASS
199	198	5	9	5.5	3091	PASS
275	198	10	30	19.0	10675	PASS
365	198	1	100	1.5	865	PASS
441	443	0	100	94.5	5304	PASS
442	198	40	100	53.8	30304	PASS
443	442	17	23	18.5	5612	PASS

Date : 31-MAY-95 13:08

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

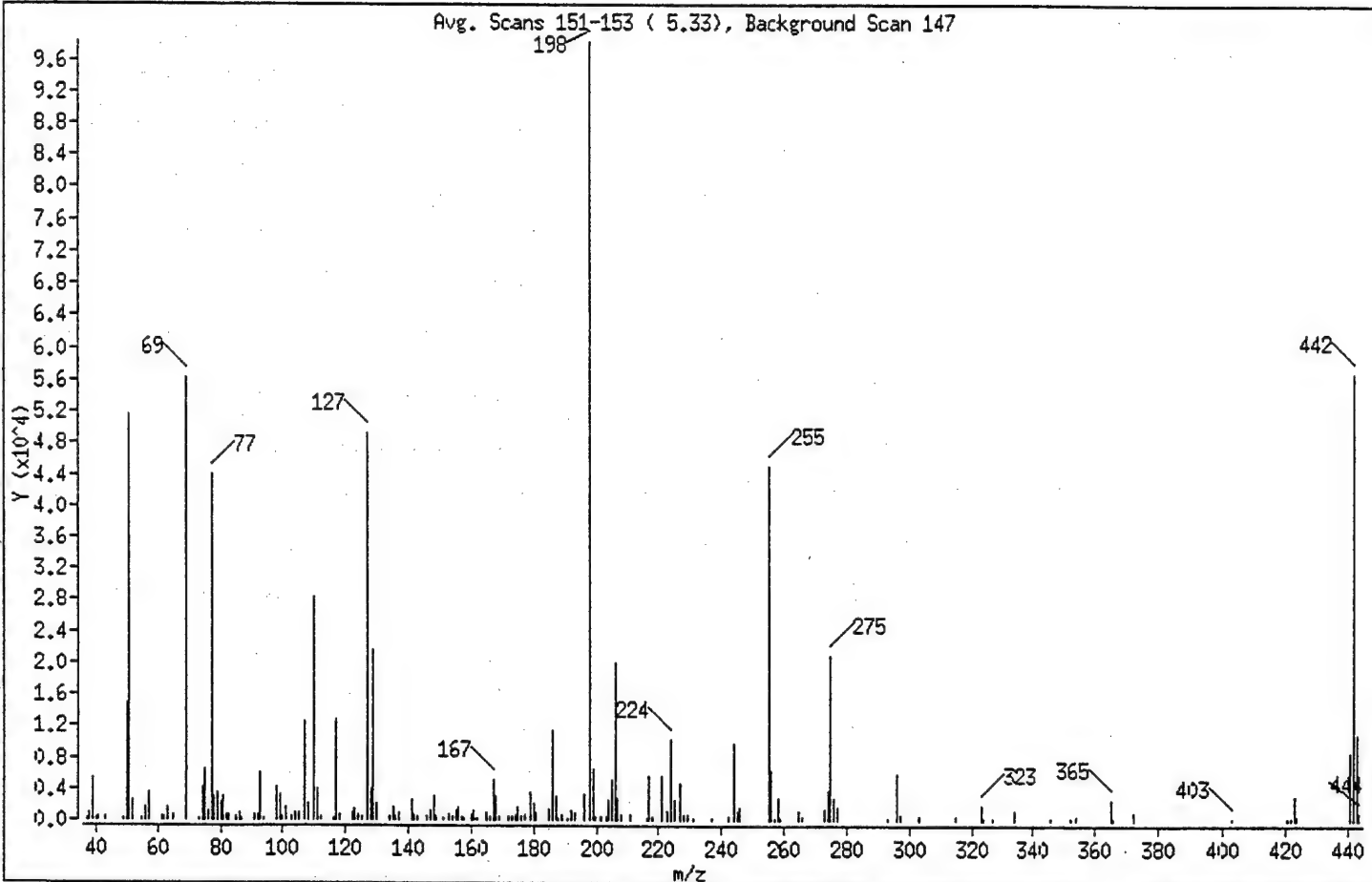
Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	52.38
68	Less than 2.00% of mass 69	0.00 ( 0.00)
69	Mass 69 relative abundance	57.15
70	Less than 2.00% of mass 69	0.00 ( 0.00)
127	40.00 - 60.00% of mass 198	50.21
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.61
275	10.00 - 30.00% of mass 198	21.20
365	Greater than 1.00% of mass 198	2.66
441	Present, but less than mass 443	8.72
442	40.00 - 110.00% of mass 198	57.93
443	17.00 - 23.00% of mass 442	11.21 ( 19.35)

Data File: /chem/h.i/h950531.b/h151df12.d

Page 1

Date : 31-MAY-95 13:08

Client ID:

Instrument: h.i

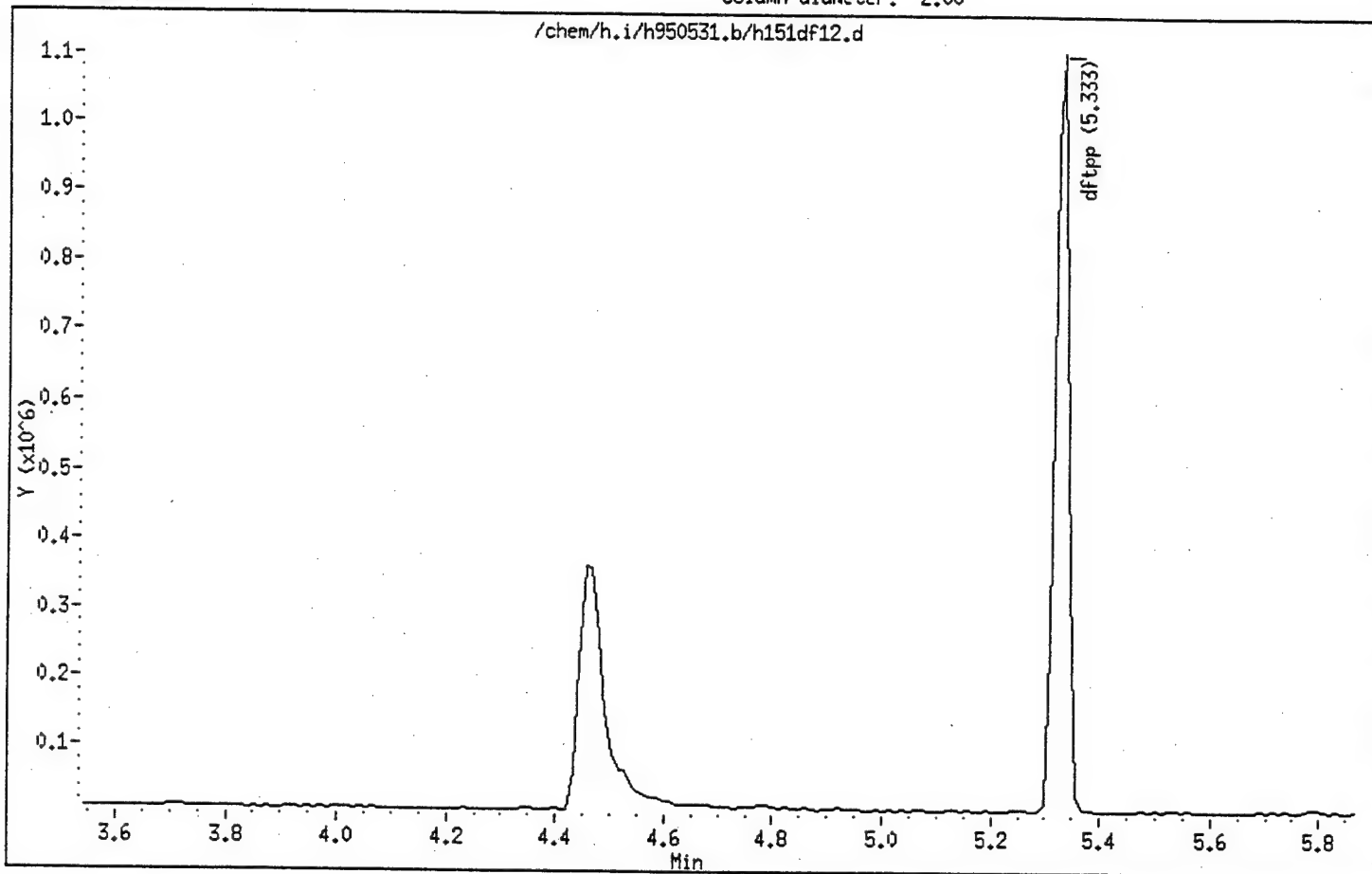
Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00



Date : 31-MAY-95 13:08

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00

Data File: h151df12.d

Spectrum : Avg. Scans 151-153 ( 5.33), Background Scan 147

Largest m/z: 197.90

Number of peaks: 166

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.85	187	104.95	899	168.95	425	241.95	498
37.85	994	106.95	12568	171.85	382	243.95	9789
38.95	5245	107.95	2023	172.85	385	244.95	1275
39.85	120	109.95	28264	173.95	792	245.85	1605
40.85	401	110.95	3957	174.95	1713	254.95	45056
43.05	416	111.95	518	175.85	477	255.95	6338
48.90	279	115.85	337	176.95	712	256.95	199
49.90	14838	116.95	12799	178.85	3507	257.95	2784
50.90	51448	117.95	798	179.95	2180	258.85	174
51.90	2638	121.90	843	180.95	1014	264.95	1122
54.90	175	122.90	1333	184.95	1505	265.85	375
55.90	1600	123.90	603	185.95	11402	272.90	1398
56.90	3405	124.90	466	186.95	3068	273.90	3755
61.00	562	126.90	49320	187.85	197	274.90	20824
61.90	547	127.90	3832	188.95	663	275.90	2869
62.90	1711	128.90	21648	190.95	177	276.90	1716
65.00	717	129.90	2013	191.95	1148	292.90	176
68.90	56136	133.80	567	192.95	873	295.90	5731
73.00	210	134.90	1528	195.95	3147	296.90	655
74.00	4203	135.90	519	197.90	98224	303.00	528
74.90	6584	137.00	813	198.90	6492	314.85	460
76.00	1160	140.90	2482	199.90	437	322.95	1920
77.00	43904	141.90	725	201.30	463	323.85	173
78.00	3088	142.90	506	202.90	511	326.85	185
78.90	3426	146.00	424	203.90	2642	333.95	1063
79.90	2413	146.90	1046	204.90	5184	345.85	205
80.90	3104	147.90	3023	205.90	19912	351.90	315
81.85	714	148.90	480	206.90	2732	354.00	457
82.85	717	151.00	171	207.90	602	364.90	2615
84.85	414	152.90	644	211.00	679	365.90	167
85.85	952	153.90	509	215.90	232	372.00	964
86.95	191	155.00	1125	216.90	5553	402.95	256
90.95	621	156.00	1738	217.90	578	420.95	216
91.95	740	157.00	380	221.00	5485	422.05	199
92.85	6077	157.90	189	222.90	1204	423.05	3084

Data File: /chem/h.i/h950531.b/h151df12.d

Page 4

Date : 31-MAY-95 13:08

Client ID:

Instrument: h.i

Sample Info: 50 NG DFTPP

Volume Injected (uL): 2.0

Operator: LH

Column phase:

Column diameter: 2.00

Data File: h151df12.d

Spectrum : Avg. Scans 151-153 ( 5.33), Background Scan 147

Largest m/z: 197.90

Number of peaks: 166

m/z	Y	m/z	Y	m/z	Y	m/z	Y
93.95	236	159.85	689	224.00	10252	423.95	488
97.95	4194	160.85	1081	225.00	2655	441.10	8568
98.85	3274	161.95	177	226.90	4622	442.00	56896
99.85	366	164.85	992	227.90	616	443.00	11013
100.85	1568	165.85	577	229.00	683	444.00	929
102.85	499	166.95	5116	231.00	195		
103.95	874	167.85	2979	236.85	217		



## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 24-MAY-1995 15:37  
 End Cal Date : 24-MAY-1995 17:27  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950524.b/hclpw.m  
 Cal Date : 25-May-1995 11:24 liping  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/h.i/h950524.b/h144ic5.d  
 Level 2: /chem/h.i/h950524.b/h144ic1.d  
 Level 3: /chem/h.i/h950524.b/h144ic4.d  
 Level 4: /chem/h.i/h950524.b/h144ic3.d  
 Level 5: /chem/h.i/h950524.b/h144ic2.d

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
2 Pyridine	2.28163	2.28935	2.34936	2.03309	2.27949	2.24659	5.464
5 Phenol	2.15885	2.33902	2.29608	2.19533	1.96442	2.19074	6.667
6 Aniline	2.10403	2.21855	2.21002	2.12645	2.08007	2.14782	2.930
7 bis(2-Chloroethyl)ether	1.77650	1.94108	2.14610	1.97130	1.73803	1.91460	8.573
9 2-Chlorophenol	1.43628	1.54078	1.55090	1.45120	1.41062	1.47795	4.313
10 1,3-Dichlorobenzene	1.60259	1.57654	1.61540	1.56002	1.48290	1.56749	3.318
12 1,4-Dichlorobenzene	1.59348	1.66011	1.60455	1.50189	1.51123	1.57425	4.246
13 Benzyl alcohol	0.60744	1.04660	0.94143	0.91747	0.80948	0.86448	19.269
15 1,2-Dichlorobenzene	1.40817	1.47891	1.47631	1.39469	1.31210	1.41403	4.859
16 2-Methylphenol	1.31226	1.49853	1.55538	1.54560	1.29242	1.44084	8.914
17 ortho-Cresol	1.31226	1.49853	1.55538	1.54560	1.25483	1.43332	9.760
18 bis(2-chloroisopropyl)ether	2.27146	2.78240	2.78511	2.64464	2.22931	2.54258	10.742
19 4-Methylphenol	1.12841	1.51334	1.50445	1.51665	1.20425	1.37342	13.906
20 meta,para-Cresol	1.12841	1.51334	1.50445	1.51665	1.20425	1.37342	13.906
21 N-Nitroso-di-n-propylamine	0.78994	1.23508	1.24076	1.19516	0.88553	1.06929	20.087
22 Hexachloroethane	0.67327	0.70873	0.70054	0.67277	0.64458	0.67998	3.749
24 Nitrobenzene	0.45435	0.44441	0.44707	0.43117	0.42986	0.44137	2.394
25 Isophorone	0.70168	0.93206	0.94179	0.91291	0.76885	0.85146	12.824
26 2-Nitrophenol	0.18614	0.20309	0.21825	0.20917	0.20607	0.20454	5.746
27 2,4-Dimethylphenol	0.36264	0.38493	0.39825	0.38415	0.36478	0.37895	3.963
28 Benzoic acid	0.05088	0.09164	0.08413	0.12394	0.11486	0.09309	30.808
29 bis(2-Chloroethoxy)methane	0.44732	0.55675	0.56815	0.53768	0.49086	0.52015	9.667
30 2,4-Dichlorophenol	0.23288	0.25184	0.25953	0.25752	0.24359	0.24907	4.401
31 1,2,4-Trichlorobenzene	0.26784	0.26441	0.26150	0.25058	0.25914	0.26069	2.503
33 Naphthalene	1.07847	1.11273	1.07983	1.04880	1.01613	1.06719	3.413
34 4-Chloroaniline	0.35385	0.37402	0.39411	0.39719	0.35376	0.37459	5.593

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 24-MAY-1995 15:37  
 End Cal Date : 24-MAY-1995 17:27  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950524.b/hclpw.m  
 Cal Date : 25-May-1995 11:24 liping  
 Curve Type : Average

Compound	20	50	80	120	160	RRF	% RSD
	Level 1	Level 2	Level 3	Level 4	Level 5		
35 Hexachlorobutadiene	0.11480	0.11122	0.10532	0.10308	0.11161	0.10921	4.434
36 4-Chloro-3-methylphenol	0.23777	0.29945	0.32905	0.32624	0.27691	0.29388	12.904
37 2-Methylnaphthalene	0.51928	0.63985	0.65227	0.63550	0.55996	0.60137	9.728
38 Hexachlorocyclopentadiene	0.24604	0.24463	0.23977	0.23190	0.28446	0.24936	8.175
39 2,4,6-Trichlorophenol	0.29102	0.30603	0.33802	0.31234	0.33975	0.31743	6.637
40 2,4,5-Trichlorophenol	0.35022	0.35167	0.36376	0.37569	0.39340	0.36695	4.912
42 2-Chloronaphthalene	1.28826	1.18699	1.18506	1.14313	1.24265	1.20922	4.680
43 2-Nitroaniline	0.47938	0.43179	0.51679	0.51697	0.49926	0.48884	7.250
44 Dimethylphthalate	1.26769	1.47156	1.47318	1.39440	1.34890	1.39115	6.249
45 2,6-Dinitrotoluene	0.31500	0.33018	0.36346	0.36531	0.33405	0.34160	6.439
46 Acenaphthylene	2.01280	2.04850	2.08995	2.02574	2.01404	2.03821	1.584
47 3-Nitroaniline	0.38229	0.31580	0.37685	0.41785	0.41291	0.38114	10.694
49 Acenaphthene	1.22600	1.22493	1.23998	1.19998	1.17659	1.21350	2.074
50 2,4-Dinitrophenol	+++++	0.06279	0.06761	0.09797	0.11445	0.08570	28.812
51 4-Nitrophenol	0.12220	0.11034	0.13989	0.17829	0.17099	0.14434	20.578
52 Dibenzofuran	1.59396	1.47503	1.60149	1.60354	1.59367	1.57354	3.511
53 2,4-Dinitrotoluene	0.35659	0.37904	0.44609	0.47693	0.44583	0.42090	12.046
54 Diethylphthalate	1.32981	1.45455	1.57480	1.55118	1.40770	1.46361	6.929
55 4-Chlorophenyl-phenylether	0.46727	0.47953	0.52550	0.50777	0.45354	0.48672	6.058
56 Fluorene	1.15997	1.19786	1.24985	1.23108	1.09954	1.18766	5.050
57 4-Nitroaniline	0.33427	0.24827	0.34776	0.40565	0.40250	0.34769	18.432
58 4,6-Dinitro-2-methylphenol	0.04969	0.13351	0.15528	0.17318	0.16787	0.13591	37.204
59 n-Nitrosodiphenylamine	0.60541	0.66638	0.63817	0.58939	0.60271	0.62041	5.051
60 1,2-Diphenylhydrazine	3.34058	3.34696	3.04960	2.48399	2.51876	2.94798	14.423
62 4-Bromophenyl-phenylether	0.17214	0.19808	0.19637	0.17718	0.19136	0.18703	6.251
63 Hexachlorobenzene	0.16823	0.19438	0.18883	0.17199	0.18593	0.18187	6.178
64 Pentachlorophenol	0.04472	0.08025	0.09620	0.09782	0.10504	0.08481	28.497
66 Phenanthrene	1.31908	1.35092	1.38235	1.33519	1.27360	1.33223	3.021
67 Anthracene	1.26005	1.20713	1.25176	1.25538	1.27109	1.24908	1.966
68 Carbazole	1.23511	1.04712	1.08204	1.19107	1.20507	1.15208	7.150
69 Di-n-butylphthalate	1.92346	2.39617	2.28402	2.09315	1.87674	2.11471	10.615
70 Fluoranthene	1.00415	0.96239	0.97113	1.08519	1.05453	1.01548	5.234
71 Pyrene	1.84559	2.14910	2.51281	1.83018	2.06973	2.08148	13.365
73 Butylbenzylphthalate	1.18449	1.55517	1.78750	1.29790	1.32604	1.43022	16.839

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 24-MAY-1995 15:37  
 End Cal Date : 24-MAY-1995 17:27  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950524.b/hclpw.m  
 Cal Date : 25-May-1995 11:24 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
-----							
74 3,3'-Dichlorobenzidine	0.36901	0.35015	0.35212	0.42264	0.43086	0.38496	10.120
75 Benzo[a]anthracene	1.22512	1.30810	1.29249	1.26276	1.31563	1.28082	2.901
77 Chrysene	1.12139	1.17058	1.15553	1.16769	1.17767	1.15857	1.922
78 bis(2-Ethylhexyl)phthalate	1.61321	2.27355	2.55927	1.80086	1.73308	1.99599	20.166
79 Di-n-octylphthalate	4.59916	6.32942	8.10606	5.41092	5.14095	5.91730	23.229
80 Benzo[b]fluoranthene	1.73562	1.91285	1.97460	1.94104	2.01785	1.91639	5.655
81 Benzo[k]fluoranthene	1.91354	1.93392	2.12893	1.94650	1.89006	1.96259	4.862
82 Benzo[a]pyrene	1.46907	1.50773	1.55629	1.57007	1.59528	1.53969	3.295
84 Indeno[1,2,3-cd]pyrene	1.36877	1.14554	1.31602	1.36987	1.48429	1.33690	9.228
85 Dibenz[a,h]anthracene	1.10842	0.92782	1.09172	1.13520	1.21562	1.09576	9.604
86 Benzo[g,h,i]perylene	1.14279	0.95007	1.07152	1.06231	1.18715	1.08277	8.344
96 Benzidine	0.02577	0.01491	0.01195	0.01354	0.01484	0.01620	33.844
-----							
\$ 3 2-Fluorophenol	1.65905	1.65493	1.53384	1.38758	1.57348	1.56178	7.116
\$ 4 Phenol-d5	1.96888	2.11810	2.06782	2.00217	1.81107	1.99361	5.882
\$ 23 Nitrobenzene-d5	0.44882	0.44555	0.45212	0.44167	0.42865	0.44336	2.050
\$ 41 2-Fluorobiphenyl	1.35668	1.31934	1.32347	1.24625	1.30201	1.30955	3.096
\$ 61 2,4,6-Tribromophenol	0.05928	0.06982	0.07427	0.06839	0.07684	0.06972	9.679
\$ 72 Terphenyl-d14	0.95812	1.13018	1.35023	1.01533	1.08714	1.10820	13.584

SPL Houston Labs

Data file : /chem/h.i/h950524.b/h144ic5.d

Lab Smp Id:

Inj Date : 24-MAY-1995 17:27

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950524 STD020

Comment :

Method : /chem/h.i/h950524.b/hclpw.m

Meth Date : 25-May-1995 11:25 liping

Quant Type: ISTD

Cal Date : 24-MAY-1995 15:37

Cal File: h144ic1.d

Als bottle: 6

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	2.326	2.305	(0.557)	254620	20	10
5 Phenol	94.00	3.902	3.905	(0.935)	240918	18	9
6 Aniline	93.00	3.926	3.916	(0.940)	234800	19	9 (Q)
7 bis(2-Chloroethyl)ether	93.00	3.962	3.964	(0.949)	198249	18	9
9 2-Chlorophenol	128.00	4.021	4.023	(0.963)	160282	19	9
10 1,3-Dichlorobenzene	146.00	4.151	4.142	(0.994)	178842	20	10
12 1,4-Dichlorobenzene	146.00	4.187	4.189	(1.003)	177825	19	10
13 Benzyl alcohol	108.00	4.305	4.307	(1.031)	67788	12	6 (Q)
15 1,2-Dichlorobenzene	146.00	4.364	4.355	(1.045)	157145	19	10
16 2-Methylphenol	108.00	4.424	4.426	(1.060)	146442	18	9
18 bis(2-chloroisopropyl)ether	45.00	4.447	4.450	(1.065)	253485	16	8
19 4-Methylphenol	108.00	4.554	4.556	(1.091)	125926	15	7
21 N-Nitroso-di-n-propylamine	70.00	4.566	4.568	(1.094)	88154	13	6
22 Hexachloroethane	117.00	4.637	4.639	(1.111)	75134	19	9
24 Nitrobenzene	77.00	4.708	4.710	(0.878)	136157	20	10
25 Isophorone	82.00	4.921	4.924	(0.918)	210273	15	8
26 2-Nitrophenol	139.00	5.016	5.018	(0.936)	55780	18	9 (a)
27 2,4-Dimethylphenol	107.00	5.052	5.054	(0.943)	108673	19	9
28 Benzoic acid	122.00	5.087	5.149	(0.949)	15247	11	6 (aQM)
29 bis(2-Chloroethoxy)methane	93.00	5.135	5.137	(0.958)	134049	16	8
30 2,4-Dichlorophenol	162.00	5.241	5.244	(0.978)	69787	18	9
31 1,2,4-Trichlorobenzene	180.00	5.324	5.327	(0.993)	80264	20	10
33 Naphthalene	128.00	5.384	5.386	(1.004)	323189	19	10
34 4-Chloroaniline	127.00	5.443	5.445	(1.015)	106039	19	9
35 Hexachlorobutadiene	225.00	5.561	5.564	(1.038)	34402	21	10
36 4-Chloro-3-methylphenol	107.00	5.941	5.943	(1.108)	71252	16	8
37 2-Methylnaphthalene	142.00	6.059	6.061	(1.130)	155614	16	8
38 Hexachlorocyclopentadiene	237.00	6.296	6.298	(0.884)	22075	20	10 (M)
39 2,4,6-Trichlorophenol	196.00	6.367	6.381	(0.894)	26111	19	10

Compounds	QUANT SIG		RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
	MASS						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00		6.415	6.417	(0.900)	31422	20	10
42 2-Chloronaphthalene	162.00		6.545	6.547	(0.918)	115585	22	11
43 2-Nitroaniline	65.00		6.663	6.678	(0.935)	43011	22	11(a)
44 Dimethylphthalate	163.00		6.877	6.891	(0.965)	113740	17	9
45 2,6-Dinitrotoluene	165.00		6.948	6.950	(0.975)	28262	19	10
46 Acenaphthylene	152.00		6.972	6.974	(0.978)	180592	20	10
47 3-Nitroaniline	138.00		7.090	7.092	(0.995)	34300	24	12(a)
49 Acenaphthene	153.00		7.149	7.163	(1.003)	109999	20	10
51 4-Nitrophenol	109.00		7.303	7.294	(1.025)	10964	22	11(aQ)
52 Dibenzofuran	168.00		7.315	7.317	(1.027)	143013	22	11
53 2,4-Dinitrotoluene	165.00		7.339	7.353	(1.030)	31994	19	9(Q)
54 Diethylphthalate	149.00		7.600	7.602	(1.067)	119313	18	9
55 4-Chlorophenyl-phenylether	204.00		7.659	7.673	(1.075)	41924	19	10
56 Fluorene	166.00		7.659	7.673	(1.075)	104075	19	10
57 4-Nitroaniline	138.00		7.706	7.720	(1.081)	29991	27	13(a)
58 4,6-Dinitro-2-methylphenol	198.00		7.777	7.768	(0.904)	5043	7	4(a)
59 n-Nitrosodiphenylamine	169.00		7.789	7.791	(0.905)	61448	18	9
60 1,2-Diphenylhydrazine	77.00		7.813	7.827	(0.908)	339062	20	10
62 4-Bromophenyl-phenylether	248.00		8.157	8.159	(0.948)	17472	17	9
63 Hexachlorobenzene	283.70		8.311	8.313	(0.966)	17075	17	9
64 Pentachlorophenol	265.50		8.500	8.502	(0.988)	4539	11	6(aM)
66 Phenanthrene	178.00		8.631	8.645	(1.003)	133884	20	10
67 Anthracene	178.00		8.678	8.692	(1.008)	127893	21	10
68 Carbazole	167.00		8.844	8.846	(1.028)	125361	24	12
69 Di-n-butylphthalate	149.00		9.247	9.261	(1.074)	195227	16	8
70 Fluoranthene	202.00		9.851	9.853	(1.145)	101919	21	10
71 Pyrene	202.00		10.076	10.090	(0.885)	106701	17	8
73 Butylbenzylphthalate	149.00		10.775	10.790	(0.946)	68480	15	8
74 3,3'-Dichlorobenzidine	252.00		11.344	11.370	(0.996)	21334	21	10
75 Benzo[a]anthracene	228.00		11.368	11.382	(0.998)	70829	19	9
77 Chrysene	228.00		11.415	11.441	(1.002)	64832	19	10
78 bis(2-Ethylhexyl)phthalate	149.00		11.475	11.489	(1.007)	93266	14	7
79 Di-n-octylphthalate	149.00		12.304	12.318	(0.913)	148146	14	7
80 Benzo[b]fluoranthene	252.00		12.861	12.887	(0.954)	55907	18	9
81 Benzo[k]fluoranthene	252.00		12.897	12.923	(0.957)	61638	20	10
82 Benzo[a]pyrene	252.00		13.383	13.409	(0.993)	47321	19	10
84 Indeno[1,2,3-cd]pyrene	276.00		15.255	15.293	(1.132)	44090	24	12
85 Dibenz[a,h]anthracene	278.00		15.290	15.316	(1.135)	35704	24	12
86 Benzo[g,h,i]perylene	276.00		15.741	15.779	(1.168)	36811	24	12
S 3 2-Fluorophenol	112.00		3.179	3.170	(0.762)	185143	20	10(R)
S 4 Phenol-d5	99.00		3.890	3.893	(0.932)	219718	18	9
61 2,4,6-Tribromophenol	329.70		7.931	7.934	(0.922)	6017	17	8
23 Nitrobenzene-d5	82.00		4.684	4.687	(0.874)	134499	20	10(R)
S 41 2-Fluorobiphenyl	172.00		6.438	6.452	(0.904)	121724	20	10(R)
72 Terphenyl-d14	244.00		10.242	10.256	(0.899)	55393	17	8(R)
11 1,4-Dichlorobenzene-d4	152.00		4.175	4.177	(1.000)	223191	40	
* 32 Naphthalene-d8	136.00		5.360	5.362	(1.000)	599345	40	
* 48 Acenaphthene-d10	164.00		7.126	7.128	(1.000)	179444	40	
65 Phenanthrene-d10	188.00		8.607	8.621	(1.000)	202996	40	

Compounds	QUANT SIG			REL RT	RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT			ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
* 76 Chrysene-d12	240.00	11.392	11.406	(1.000)	115628	40	
* 83 Perylene-d12	264.00	13.477	13.503	(1.000)	64423	40	
17 ortho-Cresol	108.00	4.424	4.426	(1.060)	146442	18	9
20 meta,para-Cresol	108.00	4.554	4.556	(1.091)	125926	15	7(a)
96 Benzidine	184.00	10.242	10.481	(0.899)	1490	34	17

#### QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h144ic5.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950524.b/hclpw.m  
Misc Info: 950524 STD020

Calibration Date: 05/24/95  
Calibration Time: 1537

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	212958	106479	425916	223191	4.81
32 Naphthalene-d8	774451	387226	1548902	599345	-22.61
48 Acenaphthene-d10	331554	165777	663108	179444	-45.88
65 Phenanthrene-d10	334831	167416	669662	202996	-39.37
76 Chrysene-d12	151179	75590	302358	115628	-23.52
83 Perylene-d12	75826	37913	151652	64423	-15.04

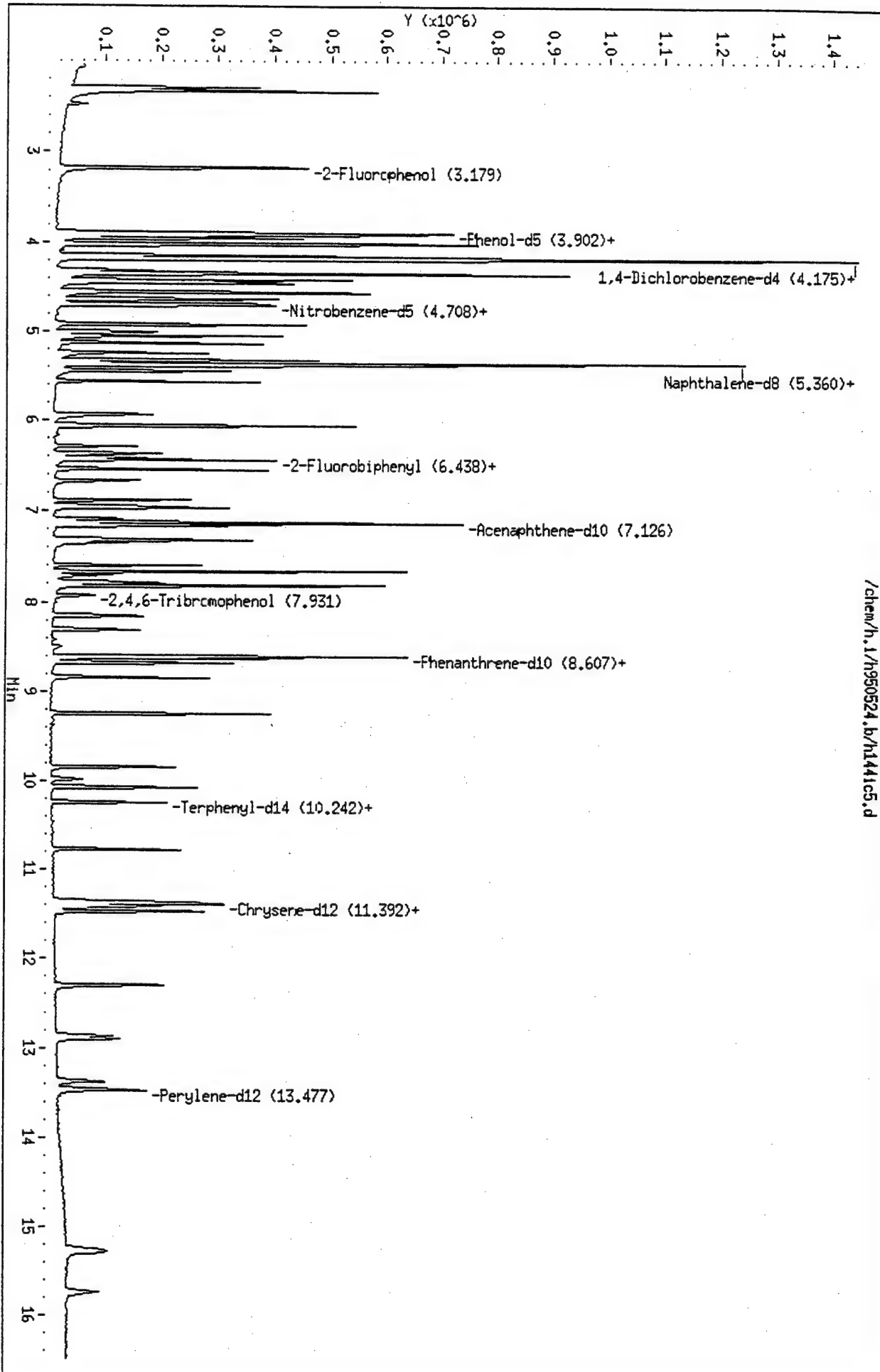
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.18	3.68	4.68	4.17	-0.05
32 Naphthalene-d8	5.36	4.86	5.86	5.36	-0.04
48 Acenaphthene-d10	7.13	6.63	7.63	7.13	-0.03
65 Phenanthrene-d10	8.62	8.12	9.12	8.61	-0.16
76 Chrysene-d12	11.41	10.91	11.91	11.39	-0.12
83 Perylene-d12	13.50	13.00	14.00	13.48	-0.19

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950524.b/h1441c5.d  
Date : 24-MAY-95 17:27  
Client ID:  
Sample Info: STD-8270W/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950524.b/h1441c5.d





SPL Houston Labs

Data file : /chem/h.i/h950524.b/h144ic1.d

Lab Smp Id:

Inj Date : 24-MAY-1995 15:37

Operator : LH

Smp Info : STD-8270W/1X

Misc Info : 950524 STD050

Comment :

Method : /chem/h.i/h950524.b/hclpw.m

Meth Date : 25-May-1995 11:25 liping

Cal Date : 24-MAY-1995 15:37

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Inst ID: h.i

Quant Type: ISTD

Cal File: h144ic1.d

Compound Sublist: std.sub

QUANT SIG

CONCENTRATIONS

Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						( ng)	( ug/L)
2 Pyridine	79.00	2.305	2.305	(0.552)	609419	50	25
5 Phenol	94.00	3.905	3.905	(0.935)	622641	50	25
6 Aniline	93.00	3.916	3.916	(0.938)	590572	50	25 (M)
7 bis(2-Chloroethyl)ether	93.00	3.964	3.964	(0.949)	516710	50	25
9 2-Chlorophenol	128.00	4.023	4.023	(0.963)	410151	50	25
10 1,3-Dichlorobenzene	146.00	4.142	4.142	(0.991)	419672	50	25
12 1,4-Dichlorobenzene	146.00	4.189	4.189	(1.003)	441918	50	25
13 Benzyl alcohol	108.00	4.307	4.307	(1.031)	278601	50	25 (M)
15 1,2-Dichlorobenzene	146.00	4.355	4.355	(1.043)	393681	50	25
16 2-Methylphenol	108.00	4.426	4.426	(1.060)	398904	50	25
18 bis(2-chloroisopropyl)ether	45.00	4.450	4.450	(1.065)	740668	50	25
19 4-Methylphenol	108.00	4.556	4.556	(1.091)	402848	50	25
21 N-Nitroso-di-n-propylamine	70.00	4.568	4.568	(1.094)	328774	50	25
22 Hexachloroethane	117.00	4.639	4.639	(1.111)	188661	50	25
24 Nitrobenzene	77.00	4.710	4.710	(0.878)	430216	50	25
25 Isophorone	82.00	4.924	4.924	(0.918)	902290	50	25
26 2-Nitrophenol	139.00	5.018	5.018	(0.936)	196603	50	25
27 2,4-Dimethylphenol	107.00	5.054	5.054	(0.943)	372635	50	25
28 Benzoic acid	122.00	5.149	5.149	(0.960)	88715	50	25 (M)
29 bis(2-Chloroethoxy)methane	93.00	5.137	5.137	(0.958)	538967	50	25
30 2,4-Dichlorophenol	162.00	5.244	5.244	(0.978)	243799	50	25
31 1,2,4-Trichlorobenzene	180.00	5.327	5.327	(0.993)	255968	50	25
33 Naphthalene	128.00	5.386	5.386	(1.004)	1077195	50	25
34 4-Chloroaniline	127.00	5.445	5.445	(1.015)	362080	50	25
35 Hexachlorobutadiene	225.00	5.564	5.564	(1.038)	107667	50	25
36 4-Chloro-3-methylphenol	107.00	5.943	5.943	(1.108)	289887	50	25
37 2-Methylnaphthalene	142.00	6.061	6.061	(1.130)	619413	50	25
38 Hexachlorocyclopentadiene	237.00	6.298	6.298	(0.884)	101385	50	25 (M)
39 2,4,6-Trichlorophenol	196.00	6.381	6.381	(0.895)	126832	50	25

Compounds	QUANT SIG			RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT REL RT		ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	==	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.417	6.417 (0.900)	145749	50	25
42 2-Chloronaphthalene	162.00	6.547	6.547 (0.919)	491938	50	25
43 2-Nitroaniline	65.00	6.678	6.678 (0.937)	178954	50	25
44 Dimethylphthalate	163.00	6.891	6.891 (0.967)	609879	50	25
45 2,6-Dinitrotoluene	165.00	6.950	6.950 (0.975)	136840	50	25
46 Acenaphthylene	152.00	6.974	6.974 (0.978)	848986	50	25
47 3-Nitroaniline	138.00	7.092	7.092 (0.995)	130882	50	25
49 Acenaphthene	153.00	7.163	7.163 (1.005)	507662	50	25
50 2,4-Dinitrophenol	184.00	7.258	7.258 (1.018)	26021	50	25 (M)
51 4-Nitrophenol	109.00	7.294	7.294 (1.023)	45729	50	25
52 Dibenzofuran	168.00	7.317	7.317 (1.027)	611317	50	25
53 2,4-Dinitrotoluene	165.00	7.353	7.353 (1.032)	157090	50	25
54 Diethylphthalate	149.00	7.602	7.602 (1.066)	602826	50	25
55 4-Chlorophenyl-phenylether	204.00	7.673	7.673 (1.076)	198738	50	25
56 Fluorene	166.00	7.673	7.673 (1.076)	496445	50	25
57 4-Nitroaniline	138.00	7.720	7.720 (1.083)	102895	50	25
58 4,6-Dinitro-2-methylphenol	198.00	7.768	7.768 (0.901)	55879	50	25
59 n-Nitrosodiphenylamine	169.00	7.791	7.791 (0.904)	278904	50	25
60 1,2-Diphenylhydrazine	77.00	7.827	7.827 (0.908)	1400832	50	25
62 4-Bromophenyl-phenylether	248.00	8.159	8.159 (0.946)	82905	50	25
63 Hexachlorobenzene	283.70	8.313	8.313 (0.964)	81356	50	25
64 Pentachlorophenol	265.50	8.502	8.502 (0.986)	33588	50	25
66 Phenanthrene	178.00	8.645	8.645 (1.003)	565411	50	25
67 Anthracene	178.00	8.692	8.692 (1.008)	505232	50	25
68 Carbazole	167.00	8.846	8.846 (1.026)	438260	50	25
69 Di-n-butylphthalate	149.00	9.261	9.261 (1.074)	1002890	50	25
70 Fluoranthene	202.00	9.853	9.853 (1.143)	402796	50	25
71 Pyrene	202.00	10.090	10.090 (0.885)	406123	50	25
73 Butylbenzylphthalate	149.00	10.790	10.790 (0.946)	293886	50	25
74 3,3'-Dichlorobenzidine	252.00	11.370	11.370 (0.997)	66169	50	25
75 Benzo[a]anthracene	228.00	11.382	11.382 (0.998)	247196	50	25
77 Chrysene	228.00	11.441	11.441 (1.003)	221209	50	25
78 bis(2-Ethylhexyl)phthalate	149.00	11.489	11.489 (1.007)	429641	50	25
79 Di-n-octylphthalate	149.00	12.318	12.318 (0.912)	599918	50	25
80 Benzo[b]fluoranthene	252.00	12.887	12.887 (0.954)	181305	50	25
81 Benzo[k]fluoranthene	252.00	12.923	12.923 (0.957)	183302	50	25
82 Benzo[a]pyrene	252.00	13.409	13.409 (0.993)	142906	50	25
84 Indeno[1,2,3-cd]pyrene	276.00	15.293	15.293 (1.133)	108577	50	25
85 Dibenz[a,h]anthracene	278.00	15.316	15.316 (1.134)	87941	50	25
86 Benzo[g,h,i]perylene	276.00	15.779	15.779 (1.168)	90050	50	25
\$ 3 2-Fluorophenol	112.00	3.170	3.170 (0.759)	440538	50	25
\$ 4 Phenol-d5	99.00	3.893	3.893 (0.932)	563834	50	25
\$ 61 2,4,6-Tribromophenol	329.70	7.934	7.934 (0.920)	29221	50	25
\$ 23 Nitrobenzene-d5	82.00	4.687	4.687 (0.874)	31318	50	25
\$ 41 2-Fluorobiphenyl	172.00	6.452	6.452 (0.905)	546791	50	25
\$ 72 Terphenyl-d14	244.00	10.256	10.256 (0.899)	213575	50	25
* 11 1,4-Dichlorobenzene-d4	152.00	4.177	4.177 (1.000)	212958	40	
* 32 Naphthalene-d8	136.00	5.362	5.362 (1.000)	774451	40	
* 48 Acenaphthene-d10	164.00	7.128	7.128 (1.000)	331554	40	

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	----	--	-----	-----	-----	-----	-----	
65 Phenanthrene-d10	188.00	8.621	8.621	(1.000)	334831	40		
* 76 Chrysene-d12	240.00	11.406	11.406	(1.000)	151179	40		
83 Perylene-d12	264.00	13.503	13.503	(1.000)	75826	40		
17 ortho-Cresol	108.00	4.426	4.426	(1.060)	398904	50	25	
20 meta,para-Cresol	108.00	4.556	4.556	(1.091)	402848	50	25	
96 Benzidine	184.00	10.481	10.481	(0.919)	2817	50	25	

QC Flag Legend

- Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h144ic1.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950524.b/hclpw.m  
Misc Info: 950524 STD050

Calibration Date: 05/24/95  
Calibration Time: 1537

Level: LOW  
Sample Type: WATER

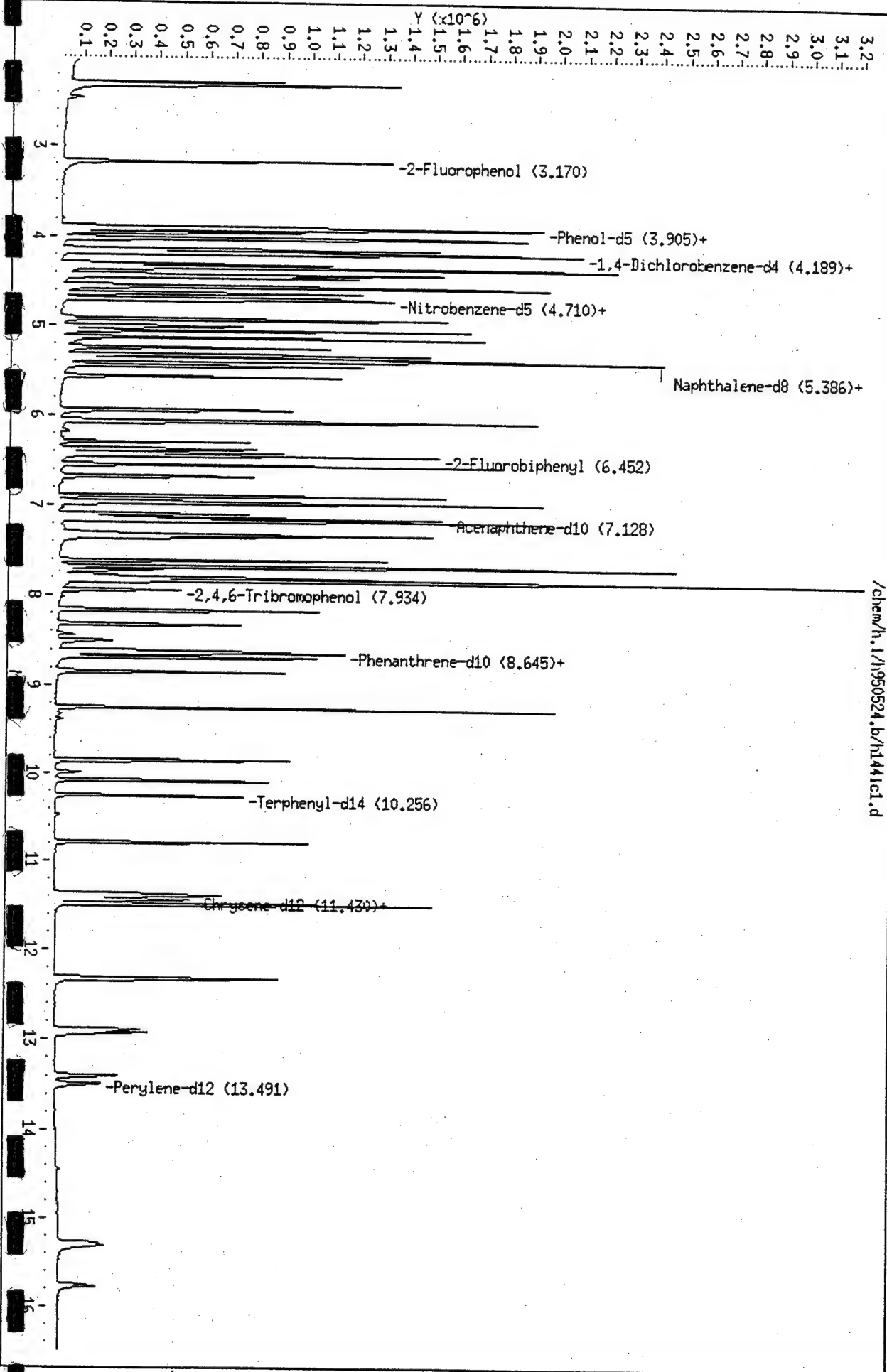
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	212958	106479	425916	212958	0.00
32 Naphthalene-d8	774451	387226	1548902	774451	0.00
48 Acenaphthene-d10	331554	165777	663108	331554	0.00
65 Phenanthrene-d10	334831	167416	669662	334831	0.00
76 Chrysene-d12	151179	75590	302358	151179	0.00
83 Perylene-d12	75826	37913	151652	75826	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.18	3.68	4.68	4.18	0.00
32 Naphthalene-d8	5.36	4.86	5.86	5.36	0.00
48 Acenaphthene-d10	7.13	6.63	7.63	7.13	0.00
65 Phenanthrene-d10	8.62	8.12	9.12	8.62	0.00
76 Chrysene-d12	11.41	10.91	11.91	11.41	0.00
83 Perylene-d12	13.50	13.00	14.00	13.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950524.b/h1441c1.d  
Date : 24-MAY-1995 15:37  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950524.b/h144ic4.d

Lab Smp Id:

Inj Date : 24-MAY-1995 16:45

Operator : LH

Smp Info : STD-8270W/1X

Misc Info : 950524 STD080

Comment :

Method : /chem/h.i/h950524.b/hclpw.m

Meth Date : 25-May-1995 11:25 liping

Cal Date : 24-MAY-1995 15:37

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Inst ID: h.i

Quant Type: ISTD

Cal File: h144ic1.d

Compound Sublist: std.sub

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	( ug/L)
2 Pyridine		79.00	2.313	2.305	(0.554)	719493	82	41
5 Phenol		94.00	3.901	3.905	(0.935)	703173	78	39
6 Aniline		93.00	3.925	3.916	(0.940)	676820	80	40 (Q)
7 bis(2-Chloroethyl)ether		93.00	3.960	3.964	(0.949)	657242	88	44
9 2-Chlorophenol		128.00	4.031	4.023	(0.966)	474963	80	40
10 1,3-Dichlorobenzene		146.00	4.150	4.142	(0.994)	494717	82	41
12 1,4-Dichlorobenzene		146.00	4.197	4.189	(1.006)	491394	77	39
13 Benzyl alcohol		108.00	4.304	4.307	(1.031)	288314	72	36 (Q)
15 1,2-Dichlorobenzene		146.00	4.363	4.355	(1.045)	452119	80	40
16 2-Methylphenol		108.00	4.422	4.426	(1.060)	476336	83	42
18 bis(2-chloroisopropyl)ether		45.00	4.446	4.450	(1.065)	852941	80	40
19 4-Methylphenol		108.00	4.553	4.556	(1.091)	460739	80	40
21 N-Nitroso-di-n-propylamine		70.00	4.576	4.568	(1.097)	379982	80	40
22 Hexachloroethane		117.00	4.636	4.639	(1.111)	214539	79	40
24 Nitrobenzene		77.00	4.707	4.710	(0.876)	516409	80	40
25 Isophorone		82.00	4.932	4.924	(0.918)	1087863	81	40
26 2-Nitrophenol		139.00	5.015	5.018	(0.934)	252098	86	43
27 2,4-Dimethylphenol		107.00	5.050	5.054	(0.940)	460021	83	41
28 Benzoic acid		122.00	5.157	5.149	(0.960)	97175	73	37 (M)
29 bis(2-Chloroethoxy)methane		93.00	5.133	5.137	(0.956)	656270	82	41
30 2,4-Dichlorophenol		162.00	5.252	5.244	(0.978)	299781	82	41
31 1,2,4-Trichlorobenzene		180.00	5.323	5.327	(0.991)	302057	79	40
33 Naphthalene		128.00	5.382	5.386	(1.002)	1247316	78	39
34 4-Chloroaniline		127.00	5.453	5.445	(1.015)	455235	84	42
35 Hexachlorobutadiene		225.00	5.560	5.564	(1.035)	121657	76	38
36 4-Chloro-3-methylphenol		107.00	5.939	5.943	(1.106)	380091	88	44
37 2-Methylnaphthalene		142.00	6.058	6.061	(1.128)	753441	82	41
38 Hexachlorocyclopentadiene		237.00	6.295	6.298	(0.884)	126317	78	39
39 2,4,6-Trichlorophenol		196.00	6.378	6.381	(0.895)	178079	88	44

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.413	6.417	(0.900)	191639	83	41
42 2-Chloronaphthalene	162.00	6.544	6.547	(0.918)	624323	80	40
43 2-Nitroaniline	65.00	6.674	6.678	(0.937)	272259	96	48
44 Dimethylphthalate	163.00	6.887	6.891	(0.967)	776115	80	40
45 2,6-Dinitrotoluene	165.00	6.958	6.950	(0.977)	191482	88	44
46 Acenaphthylene	152.00	6.970	6.974	(0.978)	1101046	82	41
47 3-Nitroaniline	138.00	7.089	7.092	(0.995)	198538	95	48
49 Acenaphthene	153.00	7.160	7.163	(1.005)	653261	81	40
50 2,4-Dinitrophenol	184.00	7.207	7.258	(1.012)	35620	86	43 (QM)
51 4-Nitrophenol	109.00	7.290	7.294	(1.023)	73698	100	51
52 Dibenzofuran	168.00	7.314	7.317	(1.027)	843714	87	43
53 2,4-Dinitrotoluene	165.00	7.349	7.353	(1.032)	235014	94	47
54 Diethylphthalate	149.00	7.610	7.602	(1.068)	829650	87	43
55 4-Chlorophenyl-phenylether	204.00	7.669	7.673	(1.077)	276849	88	44
56 Fluorene	166.00	7.669	7.673	(1.077)	658457	83	42
57 4-Nitroaniline	138.00	7.717	7.720	(1.083)	183209	110	56
58 4,6-Dinitro-2-methylphenol	198.00	7.764	7.768	(0.901)	95252	93	46
59 n-Nitrosodiphenylamine	169.00	7.788	7.791	(0.904)	391473	77	38
60 1,2-Diphenylhydrazine	77.00	7.823	7.827	(0.908)	1870702	73	36
62 4-Bromophenyl-phenylether	248.00	8.155	8.159	(0.946)	120456	79	40
63 Hexachlorobenzene	283.70	8.309	8.313	(0.964)	115831	78	39
64 Pentachlorophenol	265.50	8.499	8.502	(0.986)	59009	96	48 (M)
66 Phenanthrene	178.00	8.641	8.645	(1.003)	847969	82	41
67 Anthracene	178.00	8.677	8.692	(1.007)	767862	83	41
68 Carbazole	167.00	8.842	8.846	(1.026)	663754	83	41
69 Di-n-butylphthalate	149.00	9.257	9.261	(1.074)	1401079	76	38
70 Fluoranthene	202.00	9.850	9.853	(1.143)	595718	81	40
71 Pyrene	202.00	10.075	10.090	(0.885)	580132	94	47
73 Butylbenzylphthalate	149.00	10.774	10.790	(0.946)	412680	92	46
74 3,3'-Dichlorobenzidine	252.00	11.355	11.370	(0.997)	81294	80	40
75 Benzo[a]anthracene	228.00	11.378	11.382	(0.999)	298398	79	40
77 Chrysene	228.00	11.426	11.441	(1.003)	266777	79	39
78 bis(2-Ethylhexyl)phthalate	149.00	11.473	11.489	(1.007)	590859	90	45
79 Di-n-octylphthalate	149.00	12.303	12.318	(0.913)	765715	100	51
80 Benzo[b]fluoranthene	252.00	12.872	12.887	(0.955)	186525	82	41
81 Benzo[k]fluoranthene	252.00	12.907	12.923	(0.958)	201103	88	44
82 Benzo[a]pyrene	252.00	13.393	13.409	(0.994)	147010	82	41
84 Indeno[1,2,3-cd]pyrene	276.00	15.265	15.293	(1.133)	124314	92	46
85 Dibenz[a,h]anthracene	278.00	15.301	15.316	(1.135)	103126	94	47
86 Benzo[g,h,i]perylene	276.00	15.751	15.779	(1.169)	101218	90	45
3 2-Fluorophenol	112.00	3.178	3.170	(0.761)	469738	74	37
4 Phenol-d5	99.00	3.889	3.893	(0.932)	633271	78	39
61 2,4,6-Tribromophenol	329.70	7.930	7.934	(0.920)	45561	85	42
23 Nitrobenzene-d5	82.00	4.695	4.687	(0.874)	522241	81	40
41 2-Fluorobiphenyl	172.00	6.449	6.452	(0.905)	697245	80	40
72 Terphenyl-d14	244.00	10.241	10.256	(0.899)	311727	96	48
11 1,4-Dichlorobenzene-d4	152.00	4.173	4.177	(1.000)	153125	40	
32 Naphthalene-d8	136.00	5.370	5.362	(1.000)	577552	40	
48 Acenaphthene-d10	164.00	7.124	7.128	(1.000)	263415	40	

Compounds	QUANT SIG					CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)	
-----	----	--	-----	-----	-----	-----	-----	
* 65 Phenanthrene-d10	188.00	8.617	8.621	(1.000)	306713	40		
* 76 Chrysene-d12	240.00	11.390	11.406	(1.000)	115435	40		
* 83 Perylene-d12	264.00	13.476	13.503	(1.000)	47231	40		
17 ortho-Cresol	108.00	4.422	4.426	(1.060)	476336	83	42	
20 meta,para-Cresol	108.00	4.553	4.556	(1.091)	460739	80	40	
96 Benzidine	184.00	10.466	10.481	(0.919)	2760	64	32	

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- M - Compound response manually integrated.



SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h144ic4.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950524.b/hclpw.m  
Misc Info: 950524 STD080

Calibration Date: 05/24/95  
Calibration Time: 1537  
Level: LOW  
Sample Type: WATER

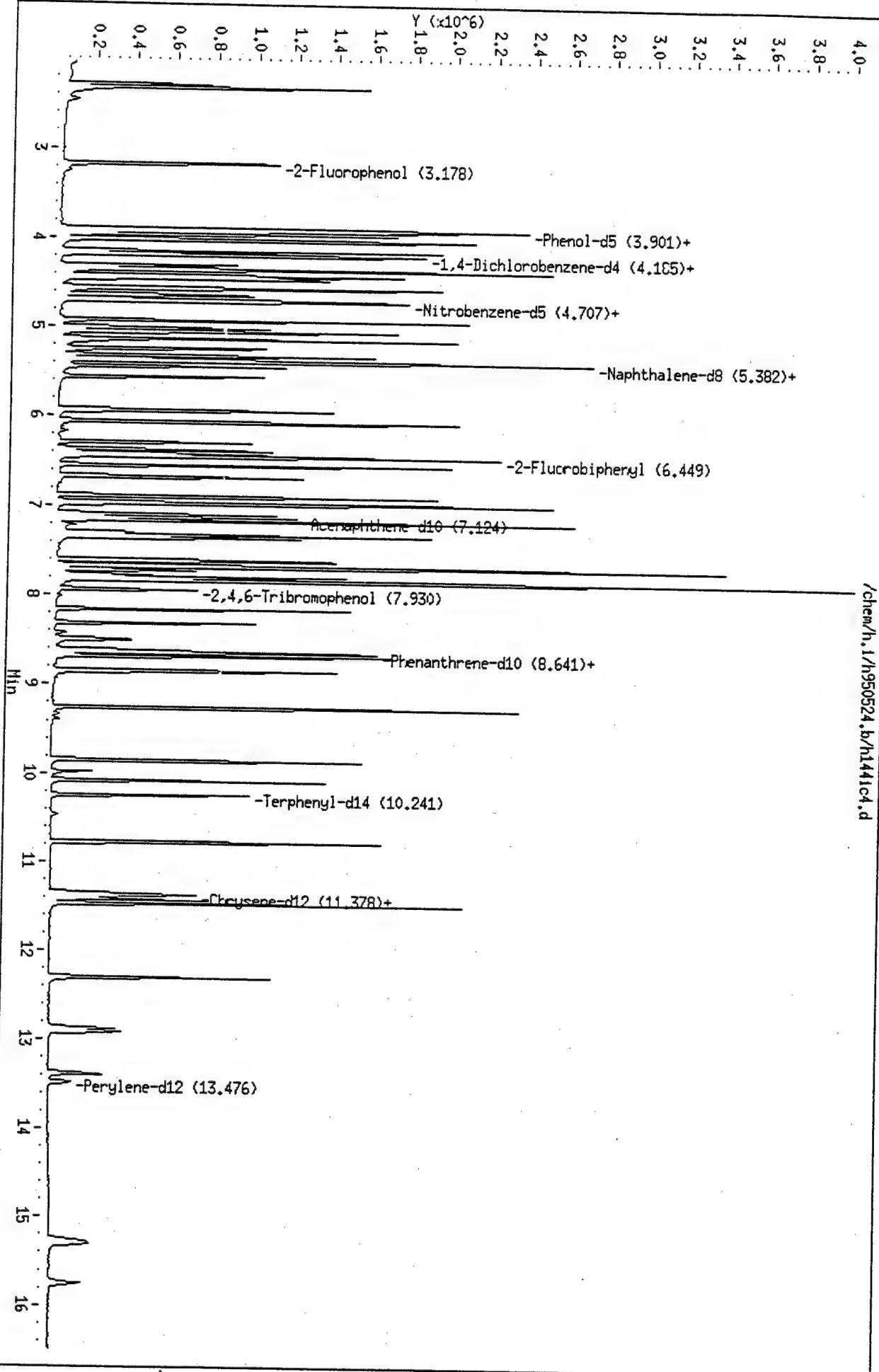
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	212958	106479	425916	153125	-28.10
32 Naphthalene-d8	774451	387226	1548902	577552	-25.42
48 Acenaphthene-d10	331554	165777	663108	263415	-20.55
65 Phenanthrene-d10	334831	167416	669662	306713	-8.40
76 Chrysene-d12	151179	75590	302358	115435	-23.64
83 Perylene-d12	75826	37913	151652	47231	-37.71

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.18	3.68	4.68	4.17	-0.09
32 Naphthalene-d8	5.36	4.86	5.86	5.37	0.15
48 Acenaphthene-d10	7.13	6.63	7.63	7.12	-0.05
65 Phenanthrene-d10	8.62	8.12	9.12	8.62	-0.04
76 Chrysene-d12	11.41	10.91	11.91	11.39	-0.14
83 Perylene-d12	13.50	13.00	14.00	13.48	-0.20

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950524.b/h1441c4.d  
Date: 24-MAY-95 16:45  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950524.b/h144ic3.d

Lab Smp Id:

Inj Date : 24-MAY-1995 16:25

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950524 STD120

Comment :

Method : /chem/h.i/h950524.b/hclpw.m

Meth Date : 25-May-1995 11:25 liping

Quant Type: ISTD

Cal Date : 24-MAY-1995 15:37

Cal File: h144ic1.d

Als bottle: 4

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						( ng)	( ug/L)
-----	----	--	-----	-----	-----	-----	-----
2 Pyridine	79.00	2.316	2.305	(0.555)	850581	110	53
5 Phenol	94.00	3.904	3.905	(0.935)	918457	110	56
6 Aniline	93.00	3.928	3.916	(0.940)	889637	120	58 (Q)
7 bis(2-Chloroethyl)ether	93.00	3.963	3.964	(0.949)	824728	120	61
9 2-Chlorophenol	128.00	4.034	4.023	(0.966)	607134	110	56
10 1,3-Dichlorobenzene	146.00	4.153	4.142	(0.994)	652661	120	59
12 1,4-Dichlorobenzene	146.00	4.188	4.189	(1.003)	628341	110	54
13 Benzyl alcohol	108.00	4.307	4.307	(1.031)	383839	100	52 (Q)
15 1,2-Dichlorobenzene	146.00	4.354	4.355	(1.043)	583492	110	56
16 2-Methylphenol	108.00	4.425	4.426	(1.060)	646631	120	62
18 bis(2-chloroisopropyl)ether	45.00	4.449	4.450	(1.065)	1106432	110	57
19 4-Methylphenol	108.00	4.556	4.556	(1.091)	634519	120	60
21 N-Nitroso-di-n-propylamine	70.00	4.580	4.568	(1.096)	500018	120	58
22 Hexachloroethane	117.00	4.639	4.639	(1.111)	281466	110	57
24 Nitrobenzene	77.00	4.710	4.710	(0.878)	685948	120	58
25 Isophorone	82.00	4.935	4.924	(0.920)	1452329	120	59
26 2-Nitrophenol	139.00	5.018	5.018	(0.936)	332764	120	62
27 2,4-Dimethylphenol	107.00	5.054	5.054	(0.943)	611132	120	60
28 Benzoic acid	122.00	5.184	5.149	(0.967)	197173	160	81 (M)
29 bis(2-Chloroethoxy)methane	93.00	5.136	5.137	(0.958)	855392	120	58
30 2,4-Dichlorophenol	162.00	5.243	5.244	(0.978)	409676	120	61
31 1,2,4-Trichlorobenzene	180.00	5.326	5.327	(0.993)	398642	110	57
33 Naphthalene	128.00	5.385	5.386	(1.004)	1668516	110	56
34 4-Chloroaniline	127.00	5.445	5.445	(1.015)	631877	130	64
35 Hexachlorobutadiene	225.00	5.563	5.564	(1.038)	163982	110	56
36 4-Chloro-3-methylphenol	107.00	5.942	5.943	(1.108)	519010	130	65
37 2-Methylnaphthalene	142.00	6.061	6.061	(1.130)	1011007	120	60
38 Hexachlorocyclopentadiene	237.00	6.298	6.298	(0.884)	174882	110	57
39 2,4,6-Trichlorophenol	196.00	6.381	6.381	(0.895)	235536	120	61

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.416	6.417	(0.900)	283110	130	64
42 2-Chloronaphthalene	162.00	6.547	6.547	(0.919)	862049	120	58
43 2-Nitroaniline	65.00	6.677	6.678	(0.937)	389856	140	72
44 Dimethylphthalate	163.00	6.890	6.891	(0.967)	1051536	110	57
45 2,6-Dinitrotoluene	165.00	6.961	6.950	(0.977)	275484	130	66
46 Acenaphthylene	152.00	6.973	6.974	(0.978)	1527640	120	59
47 3-Nitroaniline	138.00	7.092	7.092	(0.995)	315103	160	79
49 Acenaphthene	153.00	7.163	7.163	(1.005)	904920	120	59
50 2,4-Dinitrophenol	184.00	7.210	7.258	(1.012)	73878	190	94 (Q)
51 4-Nitrophenol	109.00	7.293	7.294	(1.023)	134448	190	97 (Q)
52 Dibenzofuran	168.00	7.317	7.317	(1.027)	1209249	130	65
53 2,4-Dinitrotoluene	165.00	7.352	7.353	(1.032)	359657	150	75
54 Diethylphthalate	149.00	7.613	7.602	(1.068)	1169764	130	64
55 4-Chlorophenyl-phenylether	204.00	7.672	7.673	(1.076)	382917	130	64
56 Fluorene	166.00	7.672	7.673	(1.076)	928371	120	62
57 4-Nitroaniline	138.00	7.720	7.720	(1.083)	305905	200	98
58 4,6-Dinitro-2-methylphenol	198.00	7.779	7.768	(0.902)	175211	160	78
59 n-Nitrosodiphenylamine	169.00	7.803	7.791	(0.905)	596302	110	53
60 1,2-Diphenylhydrazine	77.00	7.827	7.827	(0.908)	2513124	89	44
62 4-Bromophenyl-phenylether	248.00	8.158	8.159	(0.946)	179258	110	54
63 Hexachlorobenzene	283.70	8.312	8.313	(0.964)	174010	110	53
64 Pentachlorophenol	265.50	8.502	8.502	(0.986)	98968	150	73 (M)
66 Phenanthrene	178.00	8.644	8.645	(1.003)	1350846	120	59
67 Anthracene	178.00	8.692	8.692	(1.008)	1270103	120	62
68 Carbazole	167.00	8.846	8.846	(1.026)	1205041	140	68
69 Di-n-butylphthalate	149.00	9.260	9.261	(1.074)	2117698	100	52
70 Fluoranthene	202.00	9.853	9.853	(1.143)	1097914	140	68
71 Pyrene	202.00	10.090	10.090	(0.885)	1148953	100	51
73 Butylbenzylphthalate	149.00	10.777	10.790	(0.945)	814799	100	50
74 3,3'-Dichlorobenzidine	252.00	11.358	11.370	(0.996)	265326	140	72
75 Benzo(a)anthracene	228.00	11.382	11.382	(0.998)	792738	120	58
77 Chrysene	228.00	11.441	11.441	(1.003)	733054	120	60
78 bis(2-Ethylhexyl)phthalate	149.00	11.476	11.489	(1.006)	1130547	95	48
79 Di-n-octylphthalate	149.00	12.318	12.318	(0.913)	1827224	100	51
80 Benzo(b)fluoranthene	252.00	12.887	12.887	(0.955)	655473	120	61
81 Benzo(k)fluoranthene	252.00	12.934	12.923	(0.959)	657318	120	60
82 Benzo(a)pyrene	252.00	13.408	13.409	(0.994)	530199	120	62
84 Indeno[1,2,3-cd]pyrene	276.00	15.292	15.293	(1.133)	462594	140	72
85 Dibenz(a,h)anthracene	278.00	15.328	15.316	(1.136)	383348	150	73
86 Benzo(g,h,i)perylene	276.00	15.778	15.779	(1.170)	358732	130	67
\$ 3 2-Fluorophenol	112.00	3.169	3.170	(0.759)	580520	100	50
\$ 4 Phenol-d5	99.00	3.892	3.893	(0.932)	837643	110	57
\$ 61 2,4,6-Tribromophenol	329.70	7.933	7.934	(0.920)	69197	120	59
\$ 23 Nitrobenzene-d5	82.00	4.698	4.687	(0.876)	702677	120	59 (R)
\$ 41 2-Fluorobiphenyl	172.00	6.452	6.452	(0.905)	939812	110	57
\$ 72 Terphenyl-d14	244.00	10.256	10.256	(0.899)	637408	110	54
* 11 1,4-Dichlorobenzene-d4	152.00	4.177	4.177	(1.000)	139456	40	
* 32 Naphthalene-d8	136.00	5.362	5.362	(1.000)	530294	40	
* 48 Acenaphthene-d10	164.00	7.127	7.128	(1.000)	251371	40	

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
=====	----	--	-----	-----	-----	-----	-----	
65 Phenanthrene-d10	188.00	8.620	8.621	(1.000)	337243	40		
76 Chrysene-d12	240.00	11.405	11.406	(1.000)	209261	40		
83 Perylene-d12	264.00	13.491	13.503	(1.000)	112564	40		
17 ortho-Cresol	108.00	4.425	4.426	(1.060)	646631	120	52	
20 meta,para-Cresol	108.00	4.556	4.556	(1.091)	634519	120	50	
96 Benzidine	184.00	10.469	10.481	(0.918)	8499	110	54	

#### QC Flag Legend

- Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h144ic3.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950524.b/hclpw.m  
 Misc Info: 950524 STD120

Calibration Date: 05/24/95  
 Calibration Time: 1537

Level: LOW  
 Sample Type: WATER

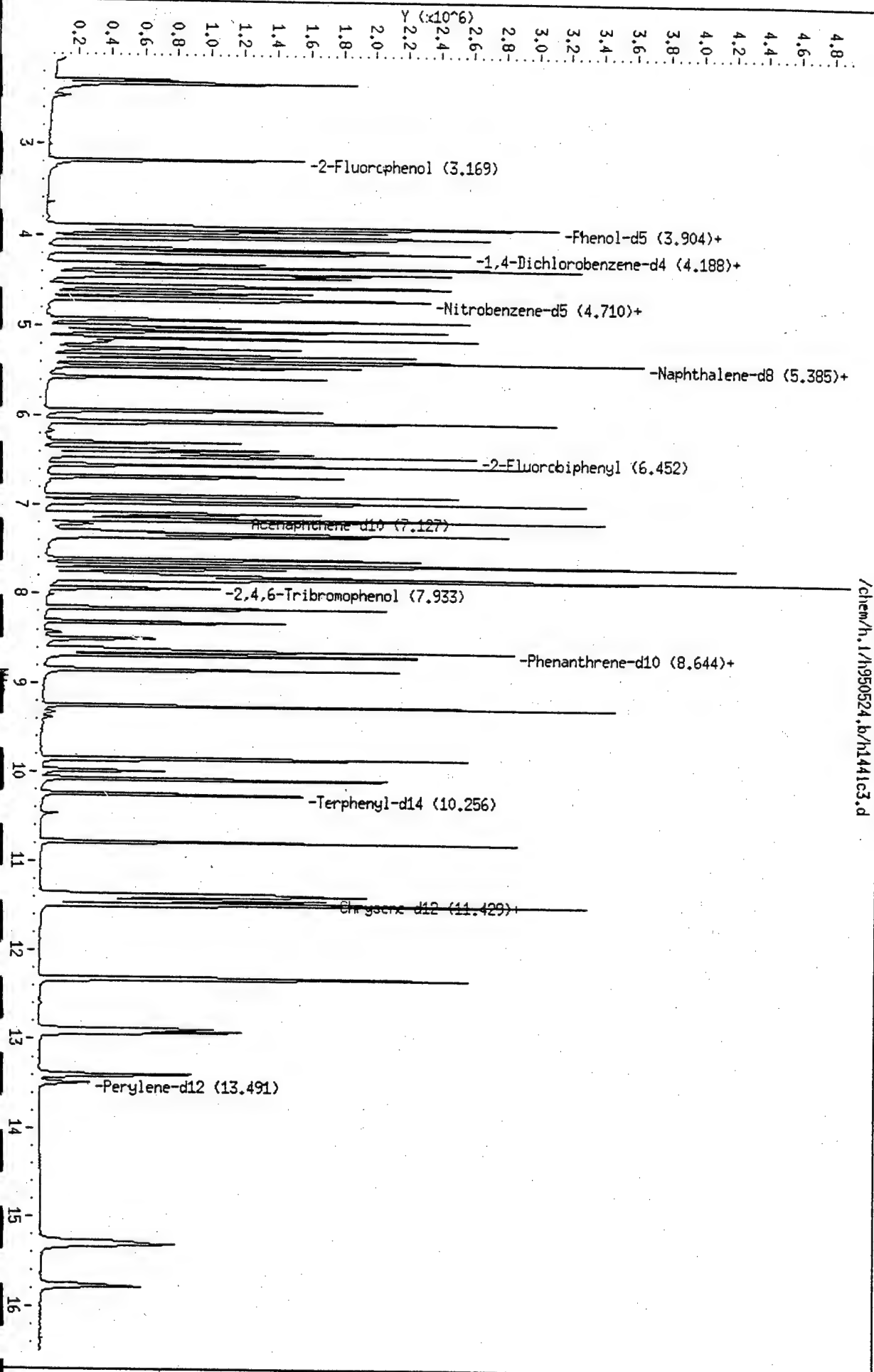
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	212958	106479	425916	139456	-34.51
32 Naphthalene-d8	774451	387226	1548902	530294	-31.53
48 Acenaphthene-d10	331554	165777	663108	251371	-24.18
65 Phenanthrene-d10	334831	167416	669662	337243	0.72
76 Chrysene-d12	151179	75590	302358	209261	38.42
83 Perylene-d12	75826	37913	151652	112564	48.45

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.18	3.68	4.68	4.18	-0.01
32 Naphthalene-d8	5.36	4.86	5.86	5.36	-0.01
48 Acenaphthene-d10	7.13	6.63	7.63	7.13	-0.01
65 Phenanthrene-d10	8.62	8.12	9.12	8.62	-0.01
76 Chrysene-d12	11.41	10.91	11.91	11.41	0.00
83 Perylene-d12	13.50	13.00	14.00	13.49	-0.09

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950524.b/h1441c3.d  
Date : 24-MAY-95 16:25  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950524.b/h144ic2.d

Lab Smp Id:

Inj Date : 24-MAY-1995 16:03

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950524 STD160

Comment :

Method : /chem/h.i/h950524.b/hclpw.m

Meth Date : 25-May-1995 11:25 liping

Quant Type: ISTD

Cal Date : 24-MAY-1995 15:37

Cal File: h144ic1.d

Als bottle: 3

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG				CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	ON-COLUMN	FINAL
-----	----	--	-----	-----	( ng)	( ug/L)
2 Pyridine	79.00	2.301	2.305	(0.551)	1909241	160 80
5 Phenol	94.00	3.912	3.905	(0.938)	1645342	130 67
6 Aniline	93.00	3.924	3.916	(0.940)	1742206	150 75 (Q)
7 bis(2-Chloroethyl)ether	93.00	3.960	3.964	(0.949)	1455727	140 72
9 2-Chlorophenol	128.00	4.031	4.023	(0.966)	1181499	150 73
10 1,3-Dichlorobenzene	146.00	4.149	4.142	(0.994)	1242033	150 75
12 1,4-Dichlorobenzene	146.00	4.197	4.189	(1.006)	1265767	140 73
13 Benzyl alcohol	108.00	4.315	4.307	(1.034)	677995	120 62 (Q)
15 1,2-Dichlorobenzene	146.00	4.363	4.355	(1.045)	1098980	140 71
16 2-Methylphenol	108.00	4.422	4.426	(1.060)	1082492	140 69 (M)
18 bis(2-chloroisopropyl)ether	45.00	4.446	4.450	(1.065)	1867208	130 64
19 4-Methylphenol	108.00	4.564	4.556	(1.094)	1008650	130 64
21 N-Nitroso-di-n-propylamine	70.00	4.576	4.568	(1.097)	741696	110 57
22 Hexachloroethane	117.00	4.647	4.639	(1.114)	539878	140 73
24 Nitrobenzene	77.00	4.718	4.710	(0.879)	1117037	150 77
25 Isophorone	82.00	4.931	4.924	(0.918)	1997952	130 66
26 2-Nitrophenol	139.00	5.014	5.018	(0.934)	535500	160 81
27 2,4-Dimethylphenol	107.00	5.062	5.054	(0.943)	947924	150 76
28 Benzoic acid	122.00	5.204	5.149	(0.969)	298491	200 100 (M)
29 bis(2-Chloroethoxy)methane	93.00	5.145	5.137	(0.958)	1275569	140 70
30 2,4-Dichlorophenol	162.00	5.251	5.244	(0.978)	632996	150 77
31 1,2,4-Trichlorobenzene	180.00	5.334	5.327	(0.993)	673406	160 78
33 Naphthalene	128.00	5.394	5.386	(1.004)	2640558	150 73
34 4-Chloroaniline	127.00	5.453	5.445	(1.015)	919289	150 76
35 Hexachlorobutadiene	225.00	5.571	5.564	(1.038)	290035	160 80
36 4-Chloro-3-methylphenol	107.00	5.939	5.943	(1.106)	719584	150 74
37 2-Methylnaphthalene	142.00	6.069	6.061	(1.130)	1455124	140 70
38 Hexachlorocyclopentadiene	237.00	6.294	6.298	(0.884)	269159	190 93
39 2,4,6-Trichlorophenol	196.00	6.377	6.381	(0.895)	321472	180 89



Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.425	6.417	(0.902)	372241	180	89
42 2-Chloronaphthalene	152.00	6.555	6.547	(0.920)	1175806	170	84
43 2-Nitroaniline	55.00	6.673	6.678	(0.937)	472406	180	92
44 Dimethylphthalate	163.00	6.899	6.891	(0.968)	1276343	150	73
45 2,6-Dinitrotoluene	165.00	6.958	6.950	(0.977)	316086	160	81
46 Acenaphthylene	152.00	6.982	6.974	(0.980)	1905708	160	79
47 3-Nitroaniline	138.00	7.100	7.092	(0.997)	390697	210	100
49 Acenaphthene	153.00	7.159	7.163	(1.005)	1113306	150	77
50 2,4-Dinitrophenol	184.00	7.207	7.258	(1.012)	108292	290	140 (QM)
51 4-Nitrophenol	109.00	7.290	7.294	(1.023)	161796	250	120
52 Dibenzofuran	168.00	7.325	7.317	(1.028)	1507952	170	86
53 2,4-Dinitrotoluene	165.00	7.361	7.353	(1.033)	421849	190	94
54 Diethylphthalate	149.00	7.610	7.602	(1.068)	1331983	150	77
55 4-Chlorophenyl-phenylether	204.00	7.669	7.673	(1.077)	429146	150	76
56 Fluorene	166.00	7.669	7.673	(1.077)	1040402	150	73
57 4-Nitroaniline	138.00	7.728	7.720	(1.085)	380854	260	130
58 4,6-Dinitro-2-methylphenol	198.00	7.776	7.768	(0.902)	191463	200	100
59 n-Nitrosodiphenylamine	169.00	7.799	7.791	(0.905)	687408	140	72
60 1,2-Diphenylhydrazine	77.00	7.835	7.827	(0.909)	2872700	120	60
62 4-Bromophenyl-phenylether	248.00	8.167	8.159	(0.948)	218252	150	77
63 Hexachlorobenzene	283.70	8.321	8.313	(0.966)	212055	150	76
64 Pentachlorophenol	265.50	8.498	8.502	(0.986)	119800	210	100 (M)
66 Phenanthrene	178.00	8.641	8.645	(1.003)	1452564	150	75
67 Anthracene	178.00	8.688	8.692	(1.008)	1449698	170	84
68 Carbazole	167.00	8.854	8.846	(1.028)	1374403	180	92
69 Di-n-butylphthalate	149.00	9.257	9.261	(1.074)	2140454	120	63
70 Fluoranthene	202.00	9.861	9.853	(1.144)	1202709	180	88
71 Pyrene	202.00	10.086	10.090	(0.885)	1203083	150	77
73 Butylbenzylphthalate	149.00	10.786	10.790	(0.946)	770795	140	68
74 3,3'-Dichlorobenzidine	252.00	11.366	11.370	(0.997)	250447	200	98
75 Benzo[a]anthracene	228.00	11.390	11.382	(0.999)	764746	160	80
77 Chrysene	228.00	11.437	11.441	(1.003)	684552	160	80
78 bis(2-Ethylhexyl)phthalate	149.00	11.485	11.489	(1.007)	1007398	120	61
79 Di-n-octylphthalate	149.00	12.326	12.318	(0.913)	1564495	130	65
80 Benzo[b]fluoranthene	252.00	12.895	12.887	(0.955)	614073	170	84
81 Benzo[k]fluoranthene	252.00	12.930	12.923	(0.958)	575182	160	78
82 Benzo[a]pyrene	252.00	13.416	13.409	(0.994)	485476	170	85
84 Indeno[1,2,3-cd]pyrene	276.00	15.300	15.293	(1.133)	451699	210	100
85 Dibenz[a,h]anthracene	278.00	15.324	15.316	(1.135)	369936	210	100
86 Benzo[g,h,i]perylene	276.00	15.786	15.779	(1.169)	361273	200	100
S 3 2-Fluorophenol	112.00	3.166	3.170	(0.759)	1317902	150	76
4 Phenol-d5	99.00	3.901	3.893	(0.935)	1516902	140	68
61 2,4,6-Tribromophenol	329.70	7.941	7.934	(0.922)	87640	180	88
S 23 Nitrobenzene-d5	82.00	4.694	4.687	(0.874)	1113905	150	77 (R)
41 2-Fluorobiphenyl	172.00	6.448	6.452	(0.905)	1231974	160	79 (R)
72 Terphenyl-d14	244.00	10.252	10.256	(0.899)	631926	150	77 (R)
* 11 1,4-Dichlorobenzene-d4	152.00	4.173	4.177	(1.000)	209393	40	
* 32 Naphthalene-d8	136.00	5.370	5.362	(1.000)	649658	40	
48 Acenaphthene-d10	164.00	7.124	7.128	(1.000)	236553	40	

Compounds	QUANT SIG					RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT			CN-COLUMN	FINAL
-----	----	--	-----	-----	-----	-----	( ng)	( ug/L)
* 65 Phenanthrene-d10	188.00	8.617	8.621	(1.000)	285130	40		
* 76 Chrysene-d12	240.00	11.402	11.406	(1.000)	145319	40		
* 83 Perylene-d12	264.00	13.499	13.503	(1.000)	76080	40		
17 ortho-Cresol	108.00	4.422	4.426	(1.060)	1051008	130		57 (M)
20 meta,para-Cresol	108.00	4.564	4.556	(1.094)	1008650	130		54
96 Benzidine	184.00	10.477	10.481	(0.919)	8624	160		80

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h144ic2.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950524.b/hclpw.m  
Misc Info: 950524 STD160

Calibration Date: 05/24/95  
Calibration Time: 1537

Level: LOW  
Sample Type: WATER

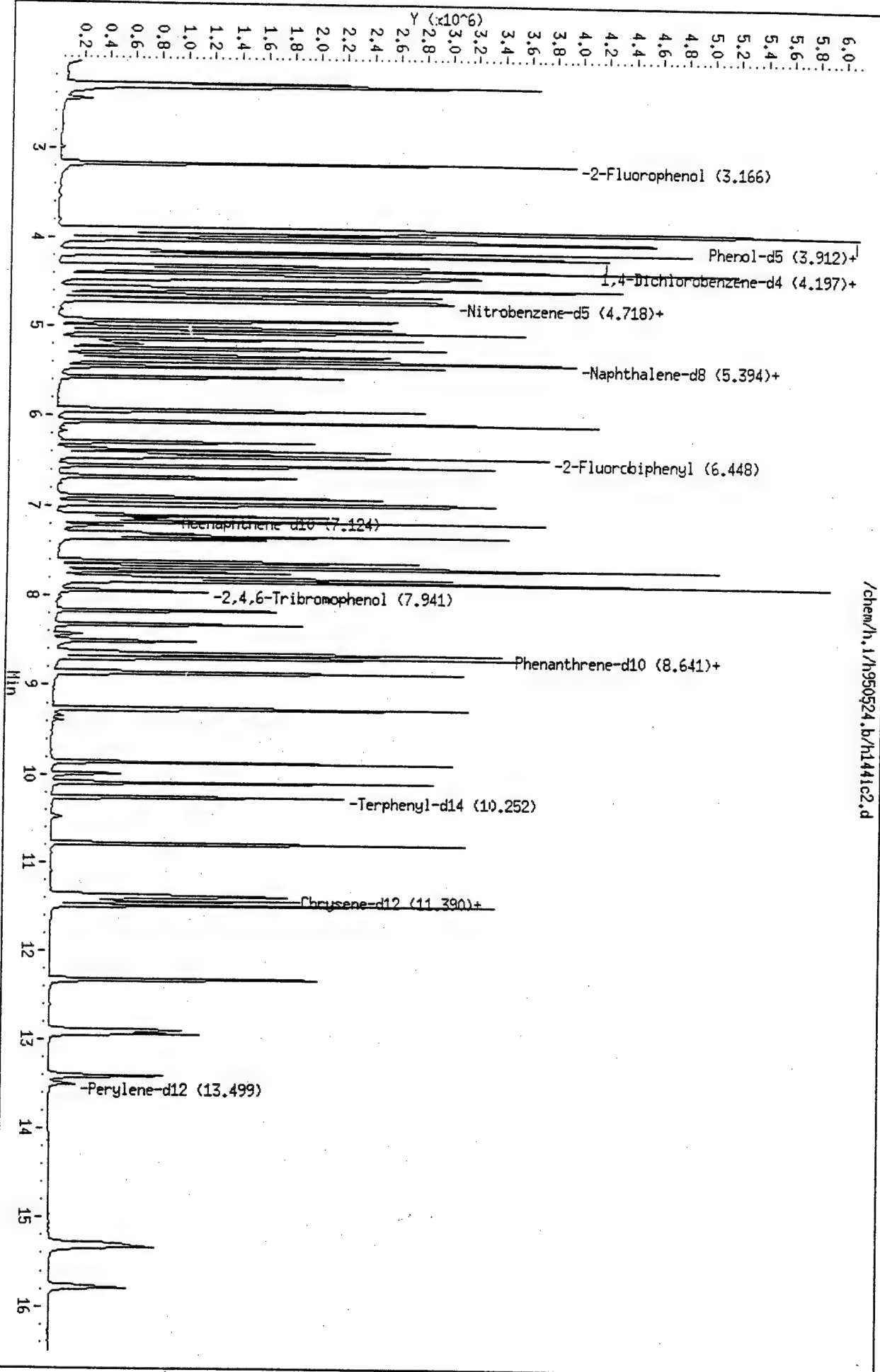
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	212958	106479	425916	209393	-1.67
32 Naphthalene-d8	774451	387226	1548902	649658	-16.11
48 Acenaphthene-d10	331554	165777	663108	236553	-28.65
65 Phenanthrene-d10	334831	167416	669662	285130	-14.84
76 Chrysene-d12	151179	75590	302358	145319	-3.88
83 Perylene-d12	75826	37913	151652	76080	0.33

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.18	3.68	4.68	4.17	-0.10
32 Naphthalene-d8	5.36	4.86	5.86	5.37	0.15
48 Acenaphthene-d10	7.13	6.63	7.63	7.12	-0.06
65 Phenanthrene-d10	8.62	8.12	9.12	8.62	-0.05
76 Chrysene-d12	11.41	10.91	11.91	11.40	-0.04
83 Perylene-d12	13.50	13.00	14.00	13.50	-0.03

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950524.b/h1441c2.d  
Date : 24-MAY-95 16:03  
Client ID:  
Sample Info: STD-8270W/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 31-MAY-1995 13:39  
 End Cal Date : 31-MAY-1995 14:03  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950531.b/hclpw.m  
 Cal Date : 31-May-1995 15:35 liping  
 Curve Type : Average

## Calibration File Names:

Level 1: /chem/h.i/h950531.b/h151ic5.d  
 Level 2: /chem/h.i/h950531.b/h151ic6.d  
 Level 3: /chem/h.i/h950531.b/h151ic2.d  
 Level 4: /chem/h.i/h950531.b/h151ic3.d  
 Level 5: /chem/h.i/h950531.b/h151ic4.d

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
2 Pyridine	2.15151	2.67393	2.17217	3.04416	2.22249	2.45285	16.066
5 Phenol	2.33915	2.37930	2.36229	2.43219	2.04441	2.31147	6.626
6 Aniline	2.63558	2.54699	2.49097	2.67555	2.27990	2.52580	6.153
7 bis(2-Chloroethyl)ether	2.07821	2.19225	2.09453	1.99471	1.87456	2.04685	5.822
9 2-Chlorophenol	1.55022	1.58072	1.56965	1.68807	1.56026	1.58978	3.528
10 1,3-Dichlorobenzene	1.59281	1.61077	1.62950	1.92490	1.61772	1.67514	8.373
12 1,4-Dichlorobenzene	1.51480	1.55694	1.55949	1.97697	1.73974	1.66959	11.528
13 Benzyl alcohol	1.06188	1.06324	0.97582	0.91898	1.00011	1.00401	6.078
15 1,2-Dichlorobenzene	1.45096	1.49635	1.45227	1.67850	1.62388	1.54039	6.789
16 2-Methylphenol	1.47671	1.47865	1.41068	1.35663	1.37342	1.41922	4.005
17 ortho-Cresol	1.47671	1.47865	1.41068	1.35663	1.37342	1.41922	4.005
18 bis(2-chloroisopropyl)ether	3.26501	3.30340	3.29533	3.07415	3.11612	3.21080	3.351
19 4-Methylphenol	1.49280	1.43868	1.41934	1.30771	1.38330	1.40837	4.884
20 meta,para-Cresol	1.49280	1.43868	1.41934	1.30771	1.38330	1.40837	4.884
21 N-Nitroso-di-n-propylamine	1.41141	1.42817	1.45595	1.06088	1.24548	1.32038	12.630
22 Hexachloroethane	0.80664	0.82540	0.79847	0.82400	0.72284	0.79547	5.303
24 Nitrobenzene	0.49541	0.51386	0.50177	0.59441	0.46938	0.51497	9.184
25 Isophorone	0.96748	0.98159	0.96166	0.89132	0.94980	0.95037	3.676
26 2-Nitrophenol	0.16657	0.17519	0.17641	0.21557	0.19228	0.18520	10.447
27 2,4-Dimethylphenol	0.40849	0.42004	0.39848	0.43639	0.38685	0.41005	4.673
28 Benzoic acid	0.06286	0.08197	0.10163	0.11235	0.12405	0.09657	25.253
29 bis(2-Chloroethoxy)methane	0.54333	0.55502	0.53775	0.53731	0.53121	0.54092	1.659
30 2,4-Dichlorophenol	0.25066	0.25904	0.25724	0.26761	0.26725	0.26036	2.754
31 1,2,4-Trichlorobenzene	0.24309	0.25958	0.25254	0.30817	0.26927	0.26653	9.445
33 Naphthalene	1.05002	1.06095	1.05819	1.19659	1.09606	1.09236	5.573
34 4-Chloroaniline	0.41802	0.42710	0.41890	0.42186	0.43591	0.42436	1.736

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 31-MAY-1995 13:39  
 End Cal Date : 31-MAY-1995 14:03  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950531.b/hclpw.m  
 Cal Date : 31-May-1995 15:35 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
35 Hexachlorobutadiene	0.12544	0.12871	0.11956	0.15286	0.13001	0.13132	9.673
36 4-Chloro-3-methylphenol	0.33485	0.34522	0.30991	0.30953	0.29824	0.31955	6.141
37 2-Methylnaphthalene	0.61816	0.63408	0.63802	0.60860	0.68501	0.63678	4.630
38 Hexachlorocyclopentadiene	0.19362	0.23984	0.23423	0.40845	0.33946	0.28312	31.172
39 2,4,6-Trichlorophenol	0.26705	0.29193	0.28576	0.35974	0.34732	0.31036	13.113
40 2,4,5-Trichlorophenol	0.33423	0.35528	0.36827	0.46637	0.32922	0.37067	15.049
42 2-Chloronaphthalene	1.10043	1.17484	1.12115	1.43021	1.28945	1.22322	11.199
43 2-Nitroaniline	0.53157	0.57740	0.57611	0.64022	0.55264	0.57559	7.081
44 Dimethylphthalate	1.39892	1.45112	1.36580	1.37808	1.38898	1.39658	2.355
45 2,6-Dinitrotoluene	0.29220	0.31689	0.30217	0.33181	0.33320	0.31525	5.722
46 Acenaphthylene	1.94937	1.98253	2.01486	2.34105	2.00724	2.05901	7.757
47 3-Nitroaniline	0.37691	0.39281	0.37642	0.41828	0.39386	0.39166	4.356
49 Acenaphthene	1.15034	1.18298	1.17895	1.31957	1.28191	1.22275	6.012
50 2,4-Dinitrophenol	++++	0.02535	0.02108	0.03630	0.05437	0.03427	43.333 <-
51 4-Nitrophenol	0.17668	0.18193	0.19873	0.22435	0.18656	0.19365	9.811
52 Dibenzofuran	1.53269	1.59715	1.62265	1.80518	1.59436	1.63041	6.327
53 2,4-Dinitrotoluene	0.34706	0.37898	0.36842	0.37893	0.38631	0.37194	4.114
54 Diethylphthalate	1.53604	1.56436	1.61287	1.47592	1.41029	1.51990	5.184
55 4-Chlorophenyl-phenylether	0.47311	0.49111	0.53150	0.53358	0.57406	0.52067	7.604
56 Fluorene	1.22409	1.28534	1.28035	1.41746	1.26072	1.29360	5.667
57 4-Nitroaniline	0.34019	0.38940	0.35399	0.39227	0.33410	0.36199	7.547
58 4,6-Dinitro-2-methylphenol	0.03966	0.06454	0.05428	0.07937	0.10832	0.06924	37.876
59 n-Nitrosodiphenylamine	0.57810	0.56403	0.59331	0.69488	0.64235	0.61453	8.747
60 1,2-Diphenylhydrazine	3.56975	3.53401	3.54840	4.35471	3.36663	3.67470	10.575
62 4-Bromophenyl-phenylether	0.20332	0.20880	0.22351	0.24863	0.26748	0.23035	11.798
63 Hexachlorobenzene	0.22746	0.22872	0.23442	0.29898	0.26398	0.25071	12.287
64 Pentachlorophenol	0.04783	0.07990	0.07515	0.07895	0.10017	0.07640	24.498 <-
66 Phenanthrene	1.23726	1.25348	1.27294	1.47911	1.43830	1.33622	8.490
67 Anthracene	1.23433	1.29377	1.35764	1.47263	1.47746	1.36717	7.879
68 Carbazole	1.10908	1.15610	1.15091	1.42394	1.23434	1.21487	10.316
69 Di-n-butylphthalate	2.04983	2.06001	2.25646	2.31749	2.23303	2.18336	5.555
70 Fluoranthene	1.06025	1.11717	1.12638	1.34490	1.11217	1.15218	9.614
71 Pyrene	1.58056	1.53324	1.59987	1.76620	1.81108	1.65819	7.391
73 Butylbenzylphthalate	1.27359	1.24650	1.34652	1.38291	1.27021	1.30395	4.440

## SPL Houston Labs

## INITIAL CALIBRATION DATA

Start Cal Date : 31-MAY-1995 13:39  
 End Cal Date : 31-MAY-1995 14:03  
 Quant Method : ISTD  
 Target Version : 3.10  
 Integrator : HP RTE  
 Method file : /chem/h.i/h950531.b/hclpw.m  
 Cal Date : 31-May-1995 15:35 liping  
 Curve Type : Average

Compound	20 Level 1	50 Level 2	80 Level 3	120 Level 4	160 Level 5	RRF	% RSD
74 3,3'-Dichlorobenzidine	0.42164	0.43850	0.43884	0.53948	0.53335	0.47436	12.040
75 Benzo[a]anthracene	1.20666	1.21635	1.27225	1.48803	1.16056	1.26877	10.155
77 Chrysene	1.05247	1.05830	1.11924	1.27477	1.16056	1.13307	8.030
78 bis(2-Ethylhexyl)phthalate	1.72628	1.65056	1.75661	1.86457	1.63264	1.72613	5.384
79 Di-n-octylphthalate	4.12544	4.26782	4.64371	4.89464	4.51791	4.48990	6.778
80 Benzo[b]fluoranthene	1.77142	1.79959	1.57805	2.07887	1.74267	1.79412	10.085
81 Benzo[k]fluoranthene	1.64142	1.75018	1.97015	1.88960	1.74267	1.79880	7.242
82 Benzo[a]pyrene	1.36072	1.38505	1.36925	1.64164	1.51713	1.45476	8.407
84 Indeno[1,2,3-cd]pyrene	1.38046	1.41488	1.39083	1.66633	1.52999	1.47650	8.243
85 Dibenz[a,h]anthracene	1.16451	1.17729	1.15657	1.39833	1.31913	1.24316	8.800
86 Benzo[g,h,i]perylene	1.14825	1.18291	1.14254	1.34984	1.21552	1.20781	7.008
96 Benzidine	0.61551	0.59042	0.55142	0.65948	0.59060	0.60149	6.602
\$ 3 2-Fluorophenol	1.66294	1.62071	1.73258	2.06242	1.58414	1.73256	11.110
\$ 4 Phenol-d5	2.17403	2.08100	2.03822	2.19440	1.86383	2.07030	6.387
\$ 23 Nitrobenzene-d5	0.46422	0.48031	0.48929	0.58281	0.48585	0.50050	9.392
\$ 41 2-Fluorobiphenyl	1.15783	1.23277	1.20232	1.59299	1.27198	1.29158	13.441
\$ 61 2,4,6-Tribromophenol	0.08837	0.09956	0.10848	0.12708	0.14017	0.11273	18.521
\$ 72 Terphenyl-d14	0.99688	1.00528	1.05873	1.18993	1.17126	1.08442	8.409

SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic5.d

Lab Smp Id:

Inj Date : 31-MAY-1995 14:48

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD020

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 6

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	( ug/L)
2 Pyridine		79.00	1.990	1.980	(0.523)	158008	16	8
5 Phenol		94.00	3.543	3.545	(0.931)	171788	20	10
6 Aniline		93.00	3.543	3.545	(0.931)	193558	21	10
7 bis(2-Chloroethyl)ether		93.00	3.590	3.592	(0.944)	152625	19	9
9 2-Chlorophenol		128.00	3.649	3.651	(0.959)	113849	20	10
10 1,3-Dichlorobenzene		146.00	3.768	3.770	(0.991)	116977	20	10
12 1,4-Dichlorobenzene		146.00	3.815	3.817	(1.003)	111248	19	10
13 Benzyl alcohol		108.00	3.934	3.936	(1.034)	77985	20	10
15 1,2-Dichlorobenzene		146.00	3.981	3.983	(1.047)	106559	19	10
16 2-Methylphenol		108.00	4.052	4.054	(1.065)	108450	20	10
18 bis(2-chloroisopropyl)ether		45.00	4.076	4.078	(1.072)	239784	20	10
19 4-Methylphenol		108.00	4.183	4.185	(1.100)	109632	21	10
21 N-Nitroso-di-n-propylamine		70.00	4.194	4.196	(1.103)	103655	20	10
22 Hexachloroethane		117.00	4.254	4.256	(1.118)	59240	20	10
24 Nitrobenzene		77.00	4.325	4.327	(0.869)	143073	19	10
25 Isophorone		82.00	4.538	4.552	(0.912)	279407	20	10
26 2-Nitrophenol		139.00	4.633	4.623	(0.931)	48104	19	10(a)
27 2,4-Dimethylphenol		107.00	4.680	4.682	(0.940)	117972	19	10
28 Benzoic acid		122.00	4.775	4.801	(0.960)	18154	15	8(a)
29 bis(2-Chloroethoxy)methane		93.00	4.763	4.765	(0.957)	156914	20	10
30 2,4-Dichlorophenol		162.00	4.858	4.860	(0.976)	72389	19	10
31 1,2,4-Trichlorobenzene		180.00	4.941	4.943	(0.993)	70204	19	9
33 Naphthalene		128.00	4.988	4.990	(1.002)	303245	20	10
34 4-Chloroaniline		127.00	5.059	5.062	(1.017)	120724	20	10
35 Hexachlorobutadiene		225.00	5.178	5.180	(1.040)	36228	19	10
36 4-Chloro-3-methylphenol		107.00	5.557	5.559	(1.117)	96705	19	10
37 2-Methylnaphthalene		142.00	5.664	5.666	(1.138)	178524	19	10
38 Hexachlorocyclopentadiene		237.00	5.901	5.903	(0.877)	26337	16	8
39 2,4,6-Trichlorophenol		196.00	5.984	5.986	(0.889)	36325	18	9



Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.031	6.021	(0.896)	45463	19	9(a)
42 2-Chloronaphthalene	162.00	6.150	6.152	(0.914)	149685	19	9
43 2-Nitroaniline	65.00	6.280	6.282	(0.933)	72306	18	9(a)
44 Dimethylphthalate	163.00	6.505	6.507	(0.967)	190286	19	10
45 2,6-Dinitrotoluene	165.00	6.564	6.567	(0.975)	39746	18	9
46 Acenaphthylene	152.00	6.564	6.567	(0.975)	265160	20	10
47 3-Nitroaniline	138.00	6.695	6.697	(0.995)	51269	19	10(a)
49 Acenaphthene	153.00	6.754	6.756	(1.004)	156473	19	10
51 4-Nitrophenol	109.00	6.908	6.910	(1.026)	24033	19	10(aQM)
52 Dibenzofuran	168.00	6.920	6.922	(1.028)	208482	19	10
53 2,4-Dinitrotoluene	165.00	6.956	6.958	(1.033)	47208	18	9
54 Diethylphthalate	149.00	7.216	7.218	(1.072)	208938	20	10
55 4-Chlorophenyl-phenylether	204.00	7.275	7.278	(1.081)	64354	19	10
56 Fluorene	166.00	7.264	7.266	(1.079)	166505	19	10
57 4-Nitroaniline	138.00	7.311	7.325	(1.086)	46274	17	9(a)
58 4,6-Dinitro-2-methylphenol	198.00	7.382	7.384	(0.900)	6801	12	6(aM)
59 n-Nitrosodiphenylamine	169.00	7.394	7.396	(0.902)	99124	20	10
60 1,2-Diphenylhydrazine	77.00	7.430	7.432	(0.906)	612085	20	10
62 4-Bromophenyl-phenylether	248.00	7.761	7.763	(0.947)	34862	19	10
63 Hexachlorobenzene	283.70	7.904	7.906	(0.964)	39002	20	10
64 Pentachlorophenol	265.50	8.105	8.095	(0.988)	8202	12	6(aM)
66 Phenanthrene	178.00	8.223	8.226	(1.003)	212146	20	10
67 Anthracene	178.00	8.271	8.273	(1.009)	211644	19	10
68 Carbazole	167.00	8.437	8.451	(1.029)	190167	19	10
69 Di-n-butylphthalate	149.00	8.875	8.877	(1.082)	351473	20	10
70 Fluoranthene	202.00	9.432	9.434	(1.150)	181796	19	9
71 Pyrene	202.00	9.657	9.659	(0.885)	186938	21	10
73 Butylbenzylphthalate	149.00	10.380	10.382	(0.951)	150631	20	10
74 3,3'-Dichlorobenzidine	252.00	10.890	10.892	(0.998)	49869	19	10
75 Benzo[a]anthracene	228.00	10.902	10.904	(0.999)	142715	20	10
77 Chrysene	228.00	10.949	10.951	(1.003)	124479	20	10
78 bis(2-Ethylhexyl)phthalate	149.00	11.032	11.034	(1.011)	204172	21	10
79 Di-n-octylphthalate	149.00	11.779	11.781	(0.921)	317442	19	10
80 Benzo[b]fluoranthene	252.00	12.241	12.243	(0.957)	136306	20	10
81 Benzo[k]fluoranthene	252.00	12.276	12.278	(0.960)	126303	19	9
82 Benzo[a]pyrene	252.00	12.703	12.705	(0.994)	104704	20	10
84 Indeno[1,2,3-cd]pyrene	276.00	14.445	14.447	(1.130)	106223	20	10
85 Dibenz[a,h]anthracene	278.00	14.480	14.483	(1.133)	89606	20	10
86 Benzo[g,h,i]perylene	276.00	14.860	14.862	(1.162)	88355	19	10
\$ 3 2-Fluorophenol	112.00	2.820	2.822	(0.741)	122127	20	10(R)
\$ 4 Phenol-d5	99.00	3.531	3.533	(0.928)	159662	21	10
\$ 61 2,4,6-Tribromophenol	329.70	7.536	7.538	(0.919)	15152	18	9
\$ 23 Nitrobenzene-d5	82.00	4.313	4.315	(0.867)	134065	19	10(R)
\$ 41 2-Fluorobiphenyl	172.00	6.055	6.057	(0.900)	157492	19	9(R)
\$ 72 Terphenyl-d14	244.00	9.847	9.849	(0.902)	117904	20	10(R)
* 11 1,4-Dichlorobenzene-d4	152.00	3.803	3.805	(1.000)	146881	40	
* 32 Naphthalene-d8	136.00	4.977	4.979	(1.000)	577597	40	
* 48 Acenaphthene-d10	164.00	6.730	6.721	(1.000)	272047	40	
* 65 Phenanthrene-d10	188.00	8.200	8.202	(1.000)	342929	40	

Compounds	QUANT SIG				CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						( ng)	( ug/L)
=====	----	--	-----	-----	-----	-----	-----
* 76 Chrysene-d12	240.00	10.914	10.916	(1.000)	236546	40	
* 83 Perylene-d12	264.00	12.786	12.788	(1.000)	153895	40	
17 ortho-Cresol	108.00	4.052	4.054	(1.065)	108450	20	10
20 meta,para-Cresol	108.00	4.183	4.185	(1.100)	109632	21	10
96 Benzidine	184.00	9.574	9.577	(0.877)	72798	21	10

#### QC Flag Legend

- a - Target compound detected but, quantitated amount  
Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic5.d  
Lab Smp Id:

Analysis Type: SV  
Quant Type: ISTD

Operator: LH

Method File: /chem/h.i/h950531.b/hclpw.m

Misc Info: 950531 STD020

Calibration Date: 05/31/95

Calibration Time: 1509

Level: LOW

Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	146881	28.53
32 Naphthalene-d8	440783	220392	881566	577597	31.04
48 Acenaphthene-d10	201424	100712	402848	272047	35.06
65 Phenanthrene-d10	261616	130808	523232	342929	31.08
76 Chrysene-d12	195160	97580	390320	236546	21.21
83 Perylene-d12	123342	61671	246684	153895	24.77

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.05
32 Naphthalene-d8	4.98	4.48	5.48	4.98	-0.04
48 Acenaphthene-d10	6.72	6.22	7.22	6.73	0.15
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	-0.03
76 Chrysene-d12	10.92	10.42	11.42	10.91	-0.02
83 Perylene-d12	12.79	12.29	13.29	12.79	-0.02

AREA UPPER LIMIT = +100% of internal standard area.

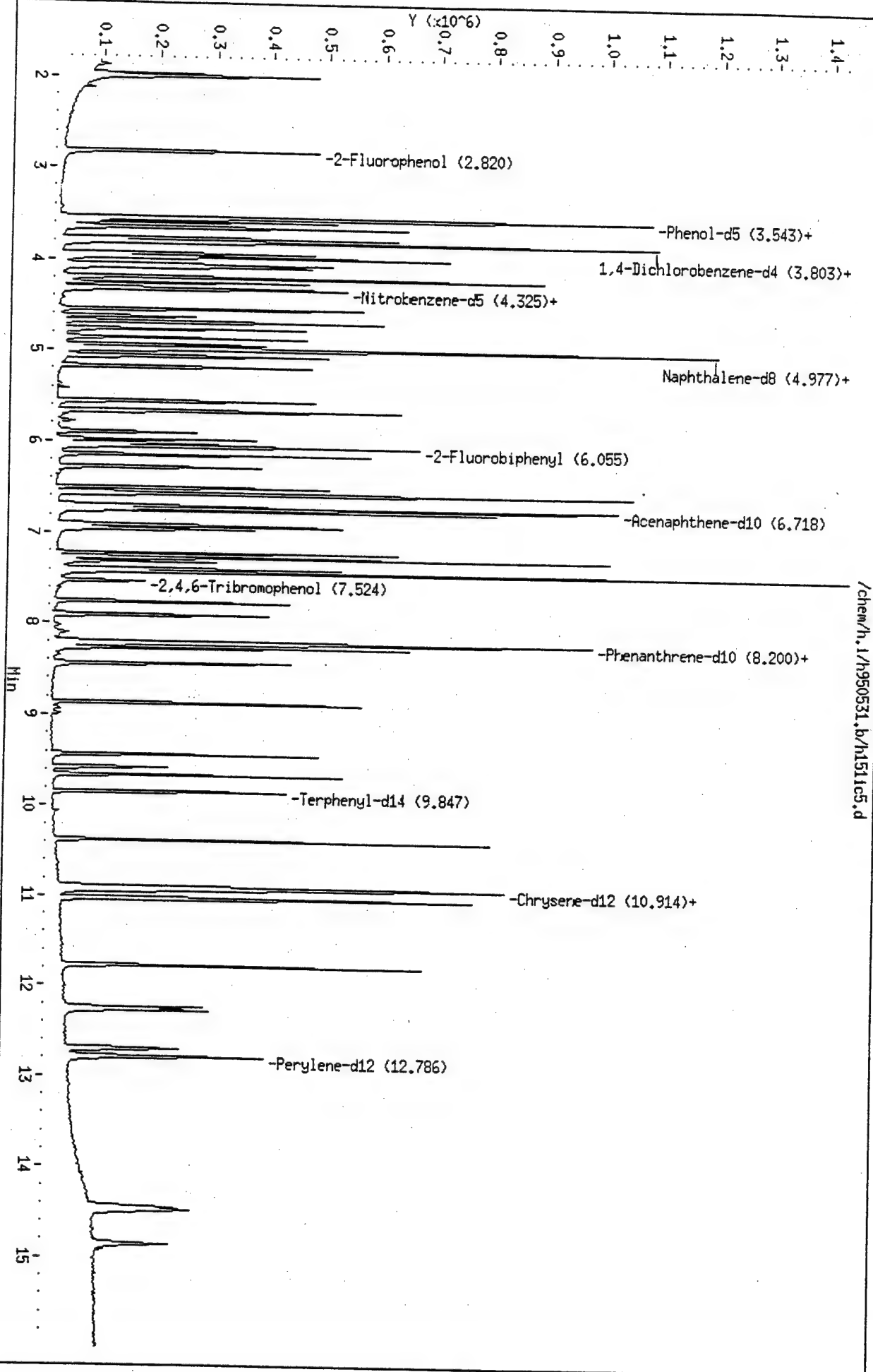
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c5.d  
Date : 31-MAY-95 14:48  
Client ID:  
Sample Info: STD-82704/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic6.d

Lab Smp Id:

Inj Date : 31-MAY-1995 15:09

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD050

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
2 Pyridine	79.00	1.980	1.980	(0.520)	381957	50	25
5 Phenol	94.00	3.545	3.545	(0.931)	339871	50	25
6 Aniline	93.00	3.545	3.545	(0.931)	363825	50	25
7 bis(2-Chloroethyl)ether	93.00	3.592	3.592	(0.944)	313152	50	25
9 2-Chlorophenol	128.00	3.651	3.651	(0.960)	225798	50	25
10 1,3-Dichlorobenzene	146.00	3.770	3.770	(0.991)	230091	50	25
12 1,4-Dichlorobenzene	146.00	3.817	3.817	(1.003)	222401	50	25
13 Benzyl alcohol	108.00	3.936	3.936	(1.034)	151878	50	25
15 1,2-Dichlorobenzene	146.00	3.983	3.983	(1.047)	213746	50	25
16 2-Methylphenol	108.00	4.054	4.054	(1.065)	211218	50	25
18 bis(2-chloroisopropyl)ether	45.00	4.078	4.078	(1.072)	471874	50	25
19 4-Methylphenol	108.00	4.185	4.185	(1.100)	205508	50	25
21 N-Nitroso-di-n-propylamine	70.00	4.196	4.196	(1.103)	204007	50	25
22 Hexachloroethane	117.00	4.256	4.256	(1.118)	117904	50	25
24 Nitrobenzene	77.00	4.327	4.327	(0.869)	283127	50	25
25 Isophorone	82.00	4.552	4.552	(0.914)	540834	50	25
26 2-Nitrophenol	139.00	4.623	4.623	(0.929)	96524	50	25
27 2,4-Dimethylphenol	107.00	4.682	4.682	(0.940)	231433	50	25
28 Benzoic acid	122.00	4.801	4.801	(0.964)	45166	50	25
29 bis(2-Chloroethoxy)methane	93.00	4.765	4.765	(0.957)	305804	50	25
30 2,4-Dichlorophenol	162.00	4.860	4.860	(0.976)	142725	50	25
31 1,2,4-Trichlorobenzene	180.00	4.943	4.943	(0.993)	143025	50	25
33 Naphthalene	128.00	4.990	4.990	(1.002)	584560	50	25
34 4-Chloroaniline	127.00	5.062	5.062	(1.017)	235323	50	25
35 Hexachlorobutadiene	225.00	5.180	5.180	(1.040)	70919	50	25
36 4-Chloro-3-methylphenol	107.00	5.559	5.559	(1.117)	190207	50	25
37 2-Methylnaphthalene	142.00	5.666	5.666	(1.138)	349367	50	25
38 Hexachlorocyclopentadiene	237.00	5.903	5.903	(0.878)	60387	50	25
39 2,4,6-Trichlorophenol	196.00	5.986	5.986	(0.891)	73501	50	25

Compounds	QUANT SIG				RESPONSE	CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT		ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	--	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.021	6.021	(0.896)	89453	50	25
42 2-Chloronaphthalene	152.00	6.152	6.152	(0.915)	295802	50	25
43 2-Nitroaniline	65.00	6.282	6.282	(0.935)	145379	50	25
44 Dimethylphthalate	163.00	6.507	6.507	(0.968)	365363	50	25
45 2,6-Dinitrotoluene	165.00	6.567	6.567	(0.977)	79786	50	25
46 Acenaphthylene	152.00	6.567	6.567	(0.977)	499162	50	25
47 3-Nitroaniline	138.00	6.697	6.697	(0.996)	98902	50	25
49 Acenaphthene	153.00	6.756	6.756	(1.005)	297851	50	25
50 2,4-Dinitrophenol	184.00	6.815	6.815	(1.014)	6383	50	25 (M)
51 4-Nitrophenol	109.00	6.910	6.910	(1.028)	45806	50	25
52 Dibenzofuran	168.00	6.922	6.922	(1.030)	402130	50	25
53 2,4-Dinitrotoluene	165.00	6.958	6.958	(1.035)	95419	50	25
54 Diethylphthalate	149.00	7.218	7.218	(1.074)	393874	50	25
55 4-Chlorophenyl-phenylether	204.00	7.278	7.278	(1.083)	123652	50	25
56 Fluorene	166.00	7.266	7.266	(1.081)	323624	50	25
57 4-Nitroaniline	138.00	7.325	7.325	(1.090)	98042	50	25
58 4,6-Dinitro-2-methylphenol	198.00	7.384	7.384	(0.900)	21106	50	25 (M)
59 n-Nitrosodiphenylamine	169.00	7.396	7.396	(0.902)	184449	50	25
60 1,2-Diphenylhydrazine	77.00	7.432	7.432	(0.906)	1155693	50	25
62 4-Bromophenyl-phenylether	248.00	7.763	7.763	(0.947)	68283	50	25
63 Hexachlorobenzene	283.70	7.906	7.906	(0.964)	74795	50	25
64 Pentachlorophenol	265.50	8.095	8.095	(0.987)	26129	50	25 (M)
66 Phenanthrene	178.00	8.226	8.226	(1.003)	409912	50	25
67 Anthracene	178.00	8.273	8.273	(1.009)	423089	50	25
68 Carbazole	167.00	8.451	8.451	(1.030)	378067	50	25
69 Di-n-butylphthalate	149.00	8.877	8.877	(1.082)	673666	50	25
70 Fluoranthene	202.00	9.434	9.434	(1.150)	365338	50	25
71 Pyrene	202.00	9.659	9.659	(0.885)	374033	50	25
73 Butylbenzylphthalate	149.00	10.382	10.382	(0.951)	304084	50	25
74 3,3'-Dichlorobenzidine	252.00	10.892	10.892	(0.998)	106972	50	25
75 Benzo[a]anthracene	228.00	10.904	10.904	(0.999)	296729	50	25
77 Chrysene	228.00	10.951	10.951	(1.003)	258173	50	25
78 bis(2-Ethylhexyl)phthalate	149.00	11.034	11.034	(1.011)	402654	50	25
79 Di-n-octylphthalate	149.00	11.781	11.781	(0.921)	658002	50	25
80 Benzo[b]fluoranthene	252.00	12.243	12.243	(0.957)	277456	50	25
81 Benzo[k]fluoranthene	252.00	12.278	12.278	(0.960)	269838	50	25
82 Benzo[a]pyrene	252.00	12.705	12.705	(0.994)	213543	50	25
84 Indeno[1,2,3-cd]pyrene	276.00	14.447	14.447	(1.130)	218143	50	25
85 Dibenz[a,h]anthracene	278.00	14.483	14.483	(1.133)	181511	50	25
86 Benzo[g,h,i]perylene	276.00	14.862	14.862	(1.162)	182378	50	25
\$ 3 2-Fluorophenol	112.00	2.822	2.822	(0.742)	231511	50	25
\$ 4 Phenol-d5	99.00	3.533	3.533	(0.928)	297261	50	25
\$ 61 2,4,6-Tribromophenol	329.70	7.538	7.538	(0.919)	32558	50	25
\$ 23 Nitrobenzene-d5	82.00	4.315	4.315	(0.867)	264640	50	25
\$ 41 2-Fluorobiphenyl	172.00	6.057	6.057	(0.901)	310387	50	25
\$ 72 Terphenyl-d14	244.00	9.849	9.849	(0.902)	245238	50	25
* 11 1,4-Dichlorobenzene-d4	152.00	3.805	3.805	(1.000)	114276	40	
* 32 Naphthalene-d8	136.00	4.979	4.979	(1.000)	440783	40	
* 48 Acenaphthene-d10	164.00	6.721	6.721	(1.000)	201424	40	

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN ( ng)	FINAL ( ug/L)
65 Phenanthrene-d10	188.00	8.202	8.202	(1.000)	261616	40	
76 Chrysene-d12	240.00	10.916	10.916	(1.000)	195160	40	
83 Perylene-d12	264.00	12.788	12.788	(1.000)	123342	40	
17 ortho-Cresol	108.00	4.054	4.054	(1.065)	211219	50	25
20 meta,para-Cresol	108.00	4.185	4.185	(1.100)	205508	50	25
96 Benzidine	184.00	9.577	9.577	(0.877)	144034	50	25

QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h151ic6.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950531.b/hclpw.m  
 Misc Info: 950531 STD050

Calibration Date: 05/31/95  
 Calibration Time: 1509  
 Level: LOW  
 Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	114276	0.00
32 Naphthalene-d8	440783	220392	881566	440783	0.00
48 Acenaphthene-d10	201424	100712	402848	201424	0.00
65 Phenanthrene-d10	261616	130808	523232	261616	0.00
76 Chrysene-d12	195160	97580	390320	195160	0.00
83 Perylene-d12	123342	61671	246684	123342	0.00

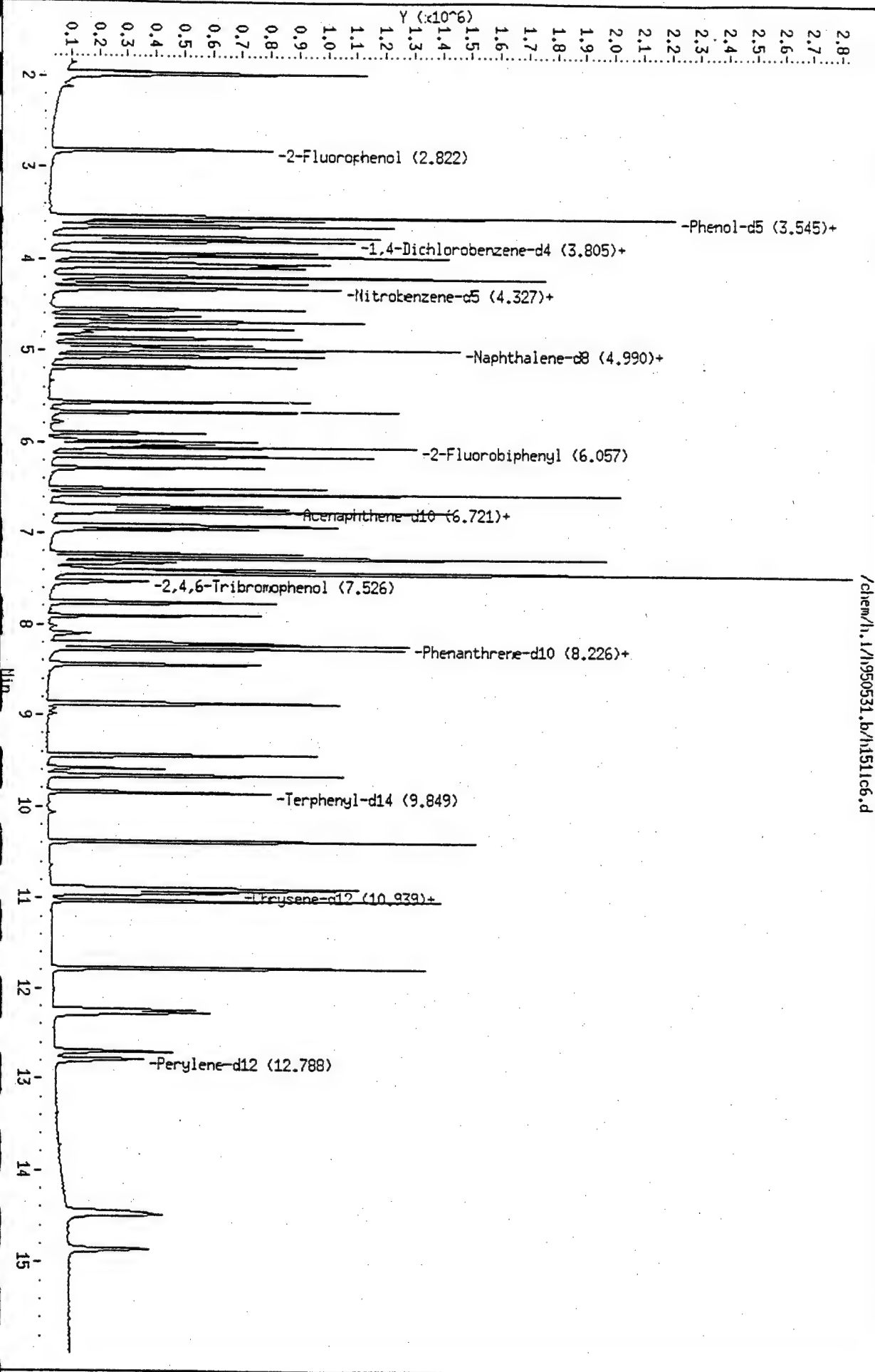
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.81	0.00
32 Naphthalene-d8	4.98	4.48	5.48	4.98	0.00
48 Acenaphthene-d10	6.72	6.22	7.22	6.72	0.00
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	0.00
76 Chrysene-d12	10.92	10.42	11.42	10.92	0.00
83 Perylene-d12	12.79	12.29	13.29	12.79	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



Data File: /chem/h.1/h950531.b/h1511c6.d  
Date: 31-MAY-95 15:09  
Client ID:  
Sample Info: STD-8270M/IX  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic2.d

Lab Smp Id:

Inj Date : 31-MAY-1995 13:39

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD080

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 3

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN	FINAL
	MASS					( ng)	( ug/L)
-----	----	==	-----	-----	-----	-----	-----
2 Pyridine	79.00	1.994	1.980	(0.524)	415953	65	32
5 Phenol	94.00	3.546	3.545	(0.931)	452360	79	40
6 Aniline	93.00	3.546	3.545	(0.931)	477001	78	39
7 bis(2-Chloroethyl)ether	93.00	3.593	3.592	(0.944)	401085	76	38
9 2-Chlorophenol	128.00	3.653	3.651	(0.960)	300575	79	40
10 1,3-Dichlorobenzene	146.00	3.771	3.770	(0.991)	312036	81	40
12 1,4-Dichlorobenzene	146.00	3.819	3.817	(1.003)	298630	80	40
13 Benzyl alcohol	108.00	3.937	3.936	(1.034)	186862	73	37
15 1,2-Dichlorobenzene	146.00	3.973	3.983	(1.044)	278099	78	39
16 2-Methylphenol	108.00	4.056	4.054	(1.065)	270133	76	38
18 bis(2-chloroisopropyl)ether	45.00	4.079	4.078	(1.072)	631030	80	40
19 4-Methylphenol	108.00	4.186	4.185	(1.100)	271793	79	39
21 N-Nitroso-di-n-propylamine	70.00	4.198	4.196	(1.103)	278803	82	41
22 Hexachloroethane	117.00	4.257	4.256	(1.118)	152901	77	39
24 Nitrobenzene	77.00	4.328	4.327	(0.871)	369220	78	39
25 Isophorone	82.00	4.541	4.552	(0.914)	707619	78	39
26 2-Nitrophenol	139.00	4.624	4.623	(0.931)	129809	80	40
27 2,4-Dimethylphenol	107.00	4.684	4.682	(0.943)	293210	76	38
28 Benzoic acid	122.00	4.802	4.801	(0.967)	74781	99	50
29 bis(2-Chloroethoxy)methane	93.00	4.755	4.765	(0.957)	395688	78	39
30 2,4-Dichlorophenol	162.00	4.861	4.860	(0.979)	189287	79	40
31 1,2,4-Trichlorobenzene	180.00	4.932	4.943	(0.993)	185827	78	39
33 Naphthalene	128.00	4.992	4.990	(1.005)	778645	80	40
34 4-Chloroaniline	127.00	5.063	5.062	(1.019)	308239	78	39
35 Hexachlorobutadiene	225.00	5.181	5.180	(1.043)	87978	74	37
36 4-Chloro-3-methylphenol	107.00	5.561	5.559	(1.119)	228043	72	36
37 2-Methylnaphthalene	142.00	5.667	5.666	(1.141)	469474	80	40
38 Hexachlorocyclopentadiene	237.00	5.904	5.903	(0.878)	76999	78	39
39 2,4,6-Trichlorophenol	196.00	5.975	5.986	(0.889)	93939	78	39

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						CN-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.023	6.021	(0.896)	121060	83	41
42 2-Chloronaphthalene	162.00	6.141	6.152	(0.914)	368554	76	38
43 2-Nitroaniline	65.00	6.272	6.282	(0.933)	189384	80	40
44 Dimethylphthalate	163.00	6.497	6.507	(0.967)	448981	75	38
45 2,6-Dinitrotoluene	165.00	6.556	6.567	(0.975)	99331	76	38
46 Acenaphthylene	152.00	6.568	6.567	(0.977)	662344	81	41
47 3-Nitroaniline	138.00	6.698	6.697	(0.996)	123741	77	38
49 Acenaphthene	153.00	6.746	6.756	(1.004)	387555	80	40
50 2,4-Dinitrophenol	184.00	6.817	6.815	(1.014)	6928	66	33 (M)
51 4-Nitrophenol	109.00	6.900	6.910	(1.026)	65329	87	44
52 Dibenzofuran	168.00	6.911	6.922	(1.028)	533414	81	41
53 2,4-Dinitrotoluene	165.00	6.947	6.958	(1.033)	121112	78	39
54 Diethylphthalate	149.00	7.220	7.218	(1.074)	530199	82	41
55 4-Chlorophenyl-phenylether	204.00	7.267	7.278	(1.081)	174721	86	43
56 Fluorene	166.00	7.255	7.266	(1.079)	420891	80	40
57 4-Nitroaniline	138.00	7.314	7.325	(1.088)	116367	73	36
58 4,6-Dinitro-2-methylphenol	198.00	7.374	7.384	(0.900)	22333	67	34 (M)
59 n-Nitrosodiphenylamine	169.00	7.397	7.396	(0.903)	244111	84	42
60 1,2-Diphenylhydrazine	77.00	7.421	7.432	(0.906)	1459953	80	40
62 4-Bromophenyl-phenylether	248.00	7.753	7.763	(0.946)	91961	86	43
63 Hexachlorobenzene	283.70	7.895	7.906	(0.964)	96450	82	41
64 Pentachlorophenol	265.50	8.085	8.095	(0.987)	30919	75	38 (M)
66 Phenanthrene	178.00	8.215	8.226	(1.003)	523738	81	41
67 Anthracene	178.00	8.262	8.273	(1.009)	558586	84	42
68 Carbazole	167.00	8.428	8.451	(1.029)	473529	80	40
69 Di-n-butylphthalate	149.00	8.855	8.877	(1.081)	928397	88	44
70 Fluoranthene	202.00	9.412	9.434	(1.149)	463439	81	40
71 Pyrene	202.00	9.637	9.659	(0.888)	469113	83	42
73 Butylbenzylphthalate	149.00	10.336	10.382	(0.952)	394828	86	43
74 3,3'-Dichlorobenzidine	252.00	10.834	10.892	(0.998)	128677	80	40
75 Benzo[a]anthracene	228.00	10.846	10.904	(0.999)	373049	84	42
77 Chrysene	228.00	10.893	10.951	(1.003)	328185	85	42
78 bis(2-Ethylhexyl)phthalate	149.00	10.964	11.034	(1.010)	515072	85	42
79 Di-n-octylphthalate	149.00	11.699	11.781	(0.922)	859115	87	44
80 Benzo[b]fluoranthene	252.00	12.161	12.243	(0.958)	291949	70	35
81 Benzo[k]fluoranthene	252.00	12.197	12.278	(0.961)	364490	90	45
82 Benzo[a]pyrene	252.00	12.611	12.705	(0.993)	253320	79	40
84 Indeno[1,2,3-cd]pyrene	276.00	14.342	14.447	(1.130)	257312	79	39
85 Dibenz[a,h]anthracene	278.00	14.365	14.483	(1.132)	213972	78	39
86 Benzo[g,h,i]perylene	276.00	14.733	14.862	(1.161)	211377	77	39
\$ 3 2-Fluorophenol	112.00	2.823	2.822	(0.742)	331776	86	43
\$ 4 Phenol-d5	99.00	3.534	3.533	(0.928)	390302	78	39
\$ 61 2,4,6-Tribromophenol	329.70	7.528	7.538	(0.919)	44633	87	44
\$ 23 Nitrobenzene-d5	82.00	4.304	4.315	(0.866)	360033	81	41
\$ 41 2-Fluorobiphenyl	172.00	6.058	6.057	(0.901)	395240	78	39
\$ 72 Terphenyl-d14	244.00	9.815	9.849	(0.904)	310442	84	42
* 11 1,4-Dichlorobenzene-d4	152.00	3.807	3.805	(1.000)	95746	40	
* 32 Naphthalene-d8	136.00	4.968	4.979	(1.000)	367914	40	
* 48 Acenaphthene-d10	164.00	6.722	6.721	(1.000)	164365	40	

Compounds	QUANT SIG					CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)	
-----	----	--	-----	-----	-----	-----	-----	
* 65 Phenanthrene-d10	188.00	8.191	8.202	(1.000)	205720	40		
* 76 Chrysene-d12	240.00	10.858	10.916	(1.000)	146610	40		
* 83 Perylene-d12	264.00	12.694	12.788	(1.000)	92503	40		
17 ortho-Cresol	108.00	4.056	4.054	(1.065)	270133	76	38	
20 meta,para-Cresol	108.00	4.186	4.185	(1.100)	271793	79	39	
96 Benzidine	184.00	9.542	9.577	(0.879)	161688	75	37	

#### QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic2.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: 950531 STD080

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	95746	-16.22
32 Naphthalene-d8	440783	220392	881566	367914	-16.53
48 Acenaphthene-d10	201424	100712	402848	164365	-18.40
65 Phenanthrene-d10	261616	130808	523232	205720	-21.37
76 Chrysene-d12	195160	97580	390320	146610	-24.88
83 Perylene-d12	123342	61671	246684	92503	-25.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.81	0.03
32 Naphthalene-d8	4.98	4.48	5.48	4.97	-0.21
48 Acenaphthene-d10	6.72	6.22	7.22	6.72	0.02
65 Phenanthrene-d10	8.20	7.70	8.70	8.19	-0.13
76 Chrysene-d12	10.92	10.42	11.42	10.86	-0.53
83 Perylene-d12	12.79	12.29	13.29	12.69	-0.73

AREA UPPER LIMIT = +100% of internal standard area.

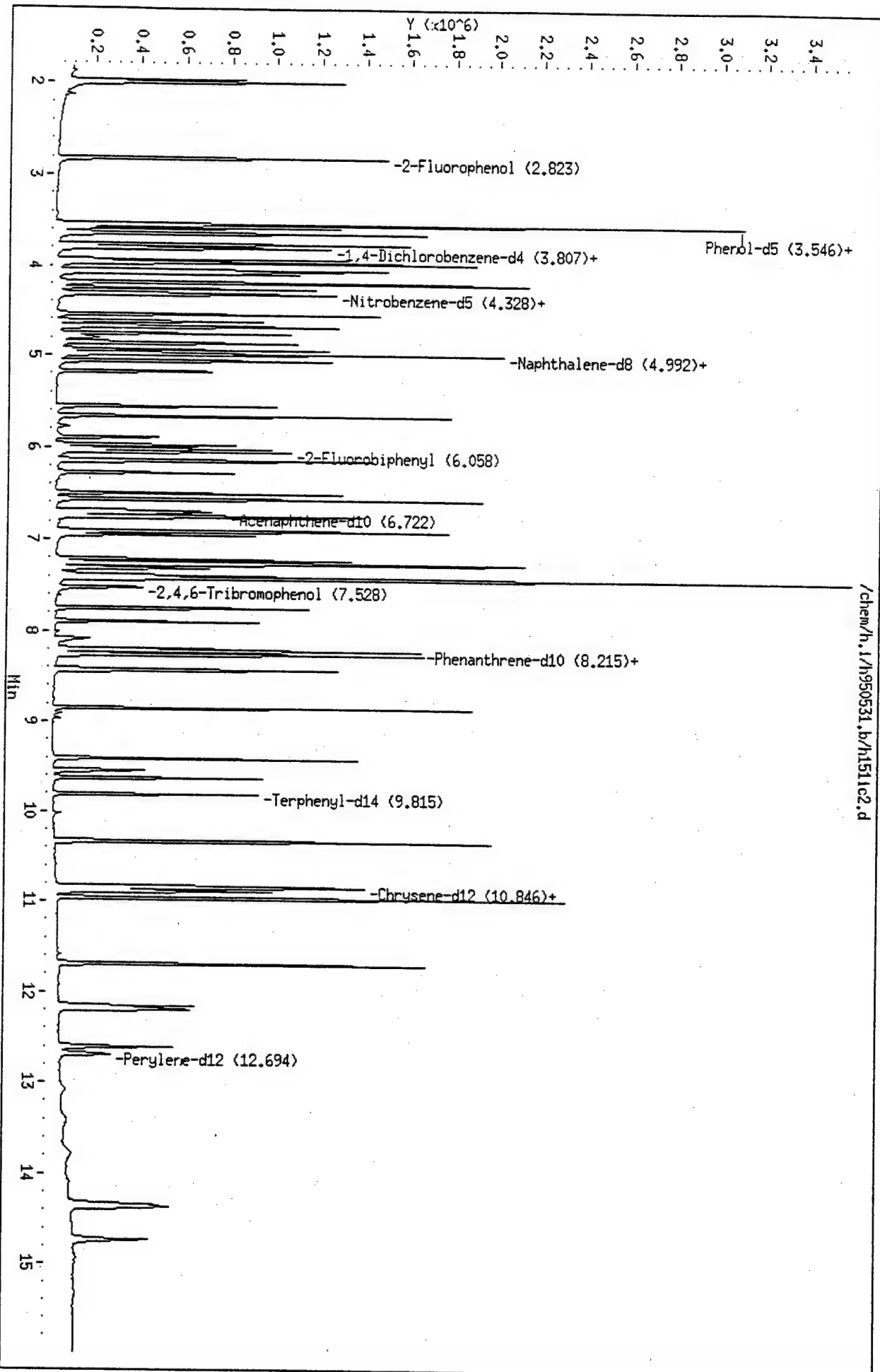
AREA LOWER LIMIT = - 50% of internal standard area.

RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c2.d  
Date : 31-MAY-95 13:39  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25



Report Date: 31-May-1995 16:06

## SPL Houston Labs

Data file: /chem/h.i/h950531.b/h151ic3.d

Lab Smp Id:

Inj Date: 31-MAY-1995 14:03

Operator: LH

Inst ID: h.i

Smp Info: STD-8270W/1X

Misc Info: 950531 STD120

Comment:

Method: /chem/h.i/h950531.b/hclpw.m

Meth Date: 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date: 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 4

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT	SIG						CONCENTRATIONS	
			MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
								( ng)	( ug/L)
2 Pyridine	79.00	1.977	1.980 (0.520)	1448925	140	68			
5 Phenol	94.00	3.553	3.545 (0.935)	1157643	120	61			
6 Aniline	93.00	3.553	3.545 (0.935)	1273478	130	63			
7 bis(2-Chloroethyl)ether	93.00	3.601	3.592 (0.947)	949420	110	54			
9 2-Chlorophenol	128.00	3.648	3.651 (0.959)	803467	130	64			
10 1,3-Dichlorobenzene	146.00	3.767	3.770 (0.991)	916193	140	72			
12 1,4-Dichlorobenzene	146.00	3.814	3.817 (1.003)	940975	150	76			
13 Benzyl alcohol	108.00	3.933	3.936 (1.034)	437407	100	52			
15 1,2-Dichlorobenzene	146.00	3.980	3.983 (1.047)	798912	130	67			
16 2-Methylphenol	108.00	4.051	4.054 (1.065)	645711	110	55			
18 bis(2-chloroisopropyl)ether	45.00	4.087	4.078 (1.075)	1463198	110	56			
19 4-Methylphenol	108.00	4.193	4.185 (1.103)	622430	110	54			
21 N-Nitroso-di-n-propylamine	70.00	4.193	4.196 (1.103)	504947	89	44			
22 Hexachloroethane	117.00	4.253	4.256 (1.118)	392199	120	60			
24 Nitrobenzene	77.00	4.324	4.327 (0.871)	827718	140	69			
25 Isophorone	82.00	4.549	4.552 (0.916)	1241155	110	54			
26 2-Nitrophenol	139.00	4.620	4.623 (0.931)	300185	150	74			
27 2,4-Dimethylphenol	107.00	4.679	4.682 (0.943)	607678	120	62			
28 Benzoic acid	122.00	4.821	4.801 (0.971)	156445	160	82 (M)			
29 bis(2-Chloroethoxy)methane	93.00	4.750	4.765 (0.957)	748207	120	58			
30 2,4-Dichlorophenol	162.00	4.857	4.860 (0.979)	372649	120	62			
31 1,2,4-Trichlorobenzene	180.00	4.928	4.943 (0.993)	429131	140	71			
33 Naphthalene	128.00	4.987	4.990 (1.005)	1666249	140	68			
34 4-Chloroaniline	127.00	5.058	5.062 (1.019)	587433	120	59			
35 Hexachlorobutadiene	225.00	5.165	5.180 (1.041)	212862	140	71			
36 4-Chloro-3-methylphenol	107.00	5.544	5.559 (1.117)	431022	110	54			
37 2-Methylnaphthalene	142.00	5.651	5.666 (1.138)	847470	120	58			
38 Hexachlorocyclopentadiene	237.00	5.888	5.903 (0.878)	177232	200	100			
39 2,4,6-Trichlorophenol	196.00	5.971	5.986 (0.890)	156095	150	74			

Compounds	QUANT SIG		RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
	MASS						CN-COLUMN	FINAL
	=====	=====	=====	=====	=====	=====	( ng)	( ug/L)
40 2,4,5-Trichlorophenol	196.00		6.006	6.021	(0.896)	202363	160	79
42 2-Chloronaphthalene	162.00		6.137	6.152	(0.915)	620589	150	73
43 2-Nitroaniline	65.00		6.267	6.282	(0.935)	277799	130	66
44 Dimethylphthalate	163.00		6.480	6.507	(0.966)	597970	110	57
45 2,6-Dinitrotoluene	165.00		6.540	6.567	(0.975)	143979	120	63
46 Acenaphthylene	152.00		6.551	6.567	(0.977)	1015816	140	71
47 3-Nitroaniline	138.00		6.682	6.697	(0.996)	181497	130	64
49 Acenaphthene	153.00		6.729	6.756	(1.004)	572581	130	67
50 2,4-Dinitrophenol	184.00		6.788	6.815	(1.012)	15749	170	86 (QM)
51 4-Nitrophenol	109.00		6.883	6.910	(1.026)	97350	150	74
52 Dibenzofuran	168.00		6.895	6.922	(1.028)	783292	140	68
53 2,4-Dinitrotoluene	165.00		6.931	6.958	(1.034)	164423	120	60
54 Diethylphthalate	149.00		7.191	7.218	(1.072)	640423	110	57
55 4-Chlorophenyl-phenylether	204.00		7.239	7.278	(1.080)	231529	130	65
56 Fluorene	166.00		7.239	7.266	(1.080)	615057	130	66
57 4-Nitroaniline	138.00		7.298	7.325	(1.088)	170213	120	60
58 4,6-Dinitro-2-methylphenol	198.00		7.357	7.384	(0.900)	36225	150	74 (M)
59 n-Nitrosodiphenylamine	169.00		7.369	7.396	(0.901)	317129	150	74
60 1,2-Diphenylhydrazine	77.00		7.405	7.432	(0.906)	1987407	150	74
62 4-Bromophenyl-phenylether	248.00		7.725	7.763	(0.945)	113468	140	71
63 Hexachlorobenzene	283.70		7.879	7.906	(0.964)	136449	160	78
64 Pentachlorophenol	265.50		8.068	8.095	(0.987)	36030	120	59 (M)
66 Phenanthrene	178.00		8.199	8.226	(1.003)	675036	140	71 (M)
67 Anthracene	178.00		8.234	8.273	(1.007)	672079	140	68
68 Carbazole	167.00		8.412	8.451	(1.029)	649857	150	74
69 Di-n-butylphthalate	149.00		8.827	8.877	(1.080)	1057657	130	67
70 Fluoranthene	202.00		9.396	9.434	(1.149)	613788	140	72
71 Pyrene	202.00		9.621	9.659	(0.886)	637426	140	69
73 Butylbenzylphthalate	149.00		10.332	10.382	(0.952)	499095	130	66
74 3,3'-Dichlorobenzidine	252.00		10.829	10.892	(0.998)	194700	150	74
75 Benzo[a]anthracene	228.00		10.841	10.904	(0.999)	537034	150	73
77 Chrysene	228.00		10.889	10.951	(1.003)	460067	140	72
78 bis(2-Ethylhexyl)phthalate	149.00		10.960	11.034	(1.010)	672930	140	68
79 Di-n-octylphthalate	149.00		11.695	11.781	(0.922)	1145478	140	69
80 Benzo[b]fluoranthene	252.00		12.157	12.243	(0.958)	486511	140	69
81 Benzo[k]fluoranthene	252.00		12.192	12.278	(0.961)	442217	130	65
82 Benzo[a]pyrene	252.00		12.607	12.705	(0.993)	384187	140	71
84 Indeno[1,2,3-cd]pyrene	276.00		14.337	14.447	(1.130)	389966	140	71
85 Dibenz[a,h]anthracene	278.00		14.373	14.483	(1.133)	327246	140	71
86 Benzo[g,h,i]perylene	276.00		14.740	14.862	(1.162)	315900	140	68
\$ 3 2-Fluorophenol	112.00		2.819	2.822	(0.741)	981645	150	76
\$ 4 Phenol-d5	99.00		3.542	3.533	(0.931)	1044464	130	63
\$ 61 2,4,6-Tribromophenol	329.70		7.500	7.538	(0.917)	57995	150	76
\$ 23 Nitrobenzene-d5	82.00		4.312	4.315	(0.869)	811562	140	73 (R)
\$ 41 2-Fluorobiphenyl	172.00		6.042	6.057	(0.901)	691219	160	78 (R)
\$ 72 Terphenyl-d14	244.00		9.798	9.849	(0.903)	429449	140	71 (R)
* 11 1,4-Dichlorobenzene-d4	152.00		3.802	3.805	(1.000)	158656	40	
* 32 Naphthalene-d8	136.00		4.964	4.979	(1.000)	464166	40	
* 48 Acenaphthene-d10	164.00		6.706	6.721	(1.000)	144638	40	



Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	( ug/L)
* 65 Phenanthrene-d10		188.10	8.175	8.202	(1.000)	152127	40	
* 76 Chrysene-d12		240.00	10.853	10.916	(1.000)	120301	40	
* 83 Perylene-d12		264.00	12.690	12.788	(1.000)	78009	40	
17 ortho-Cresol		108.00	4.051	4.054	(1.065)	645711	110	55
20 meta,para-Cresol		108.00	4.193	4.185	(1.103)	622430	110	54
96 Benzidine		184.00	9.538	9.577	(0.879)	238007	130	67

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic3.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: 950531 STD120

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

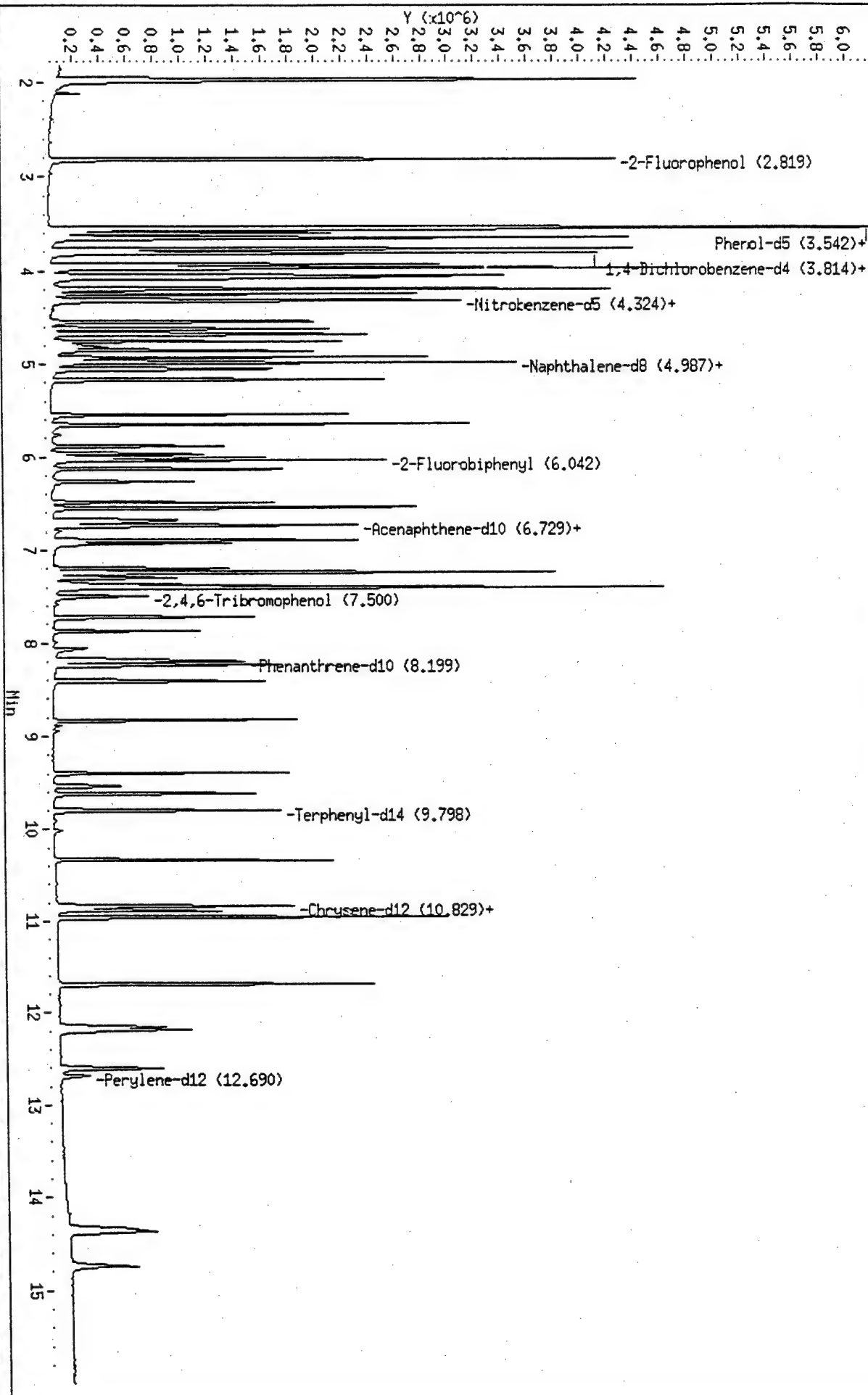
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	158656	38.84
32 Naphthalene-d8	440783	220392	881566	464166	5.30
48 Acenaphthene-d10	201424	100712	402848	144638	-28.19
65 Phenanthrene-d10	261616	130808	523232	152127	-41.85
76 Chrysene-d12	195160	97580	390320	120301	-38.36
83 Perylene-d12	123342	61671	246684	78009	-36.75

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.08
32 Naphthalene-d8	4.98	4.48	5.48	4.96	-0.30
48 Acenaphthene-d10	6.72	6.22	7.22	6.71	-0.22
65 Phenanthrene-d10	8.20	7.70	8.70	8.17	-0.33
76 Chrysene-d12	10.92	10.42	11.42	10.85	-0.57
83 Perylene-d12	12.79	12.29	13.29	12.69	-0.77

AREA UPPER LIMIT = +100% of internal standard area.  
AREA LOWER LIMIT = - 50% of internal standard area.  
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c3.d  
Date : 31-MAY-95 14:03  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (uL): 2.0  
Column phase:

Instrument: h.i  
Operator: LH  
Column diameter: 0.25



SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic4.d

Lab Smp Id:

Inj Date : 31-MAY-1995 14:26

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD160

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 5

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							( ng)	( ug/L)
2 Pyridine		79.00	1.978	1.980	(0.520)	1770116	130	66
5 Phenol		94.00	3.554	3.545	(0.935)	1628285	140	69
6 Aniline		93.00	3.554	3.545	(0.935)	1815840	140	72
7 bis(2-Chloroethyl)ether		93.00	3.601	3.592	(0.947)	1493001	140	68
9 2-Chlorophenol		128.00	3.661	3.651	(0.963)	1242681	160	79
10 1,3-Dichlorobenzene		146.00	3.767	3.770	(0.991)	1288440	160	80
12 1,4-Dichlorobenzene		146.00	3.815	3.817	(1.003)	1385625	180	89
13 Benzyl alcohol		108.00	3.945	3.936	(1.037)	796541	150	75
15 1,2-Dichlorobenzene		146.00	3.981	3.983	(1.047)	1293350	170	87
16 2-Methylphenol		108.00	4.064	4.054	(1.069)	1093871	150	74
18 bis(2-chloroisopropyl)ether		45.00	4.075	4.078	(1.072)	2481850	150	75
19 4-Methylphenol		108.00	4.194	4.185	(1.103)	1101739	150	77
21 N-Nitroso-di-n-propylamine		70.00	4.206	4.196	(1.106)	991970	140	70
22 Hexachloroethane		117.00	4.253	4.256	(1.118)	575708	140	70
24 Nitrobenzene		77.00	4.324	4.327	(0.871)	1382695	150	73
25 Isophorone		82.00	4.549	4.552	(0.916)	2797873	150	77
26 2-Nitrophenol		139.00	4.620	4.623	(0.931)	566401	180	88
27 2,4-Dimethylphenol		107.00	4.680	4.682	(0.943)	1139556	150	74
28 Benzoic acid		122.00	4.857	4.801	(0.979)	365421	240	120 (M)
29 bis(2-Chloroethoxy)methane		93.00	4.763	4.765	(0.959)	1564817	150	76
30 2,4-Dichlorophenol		162.00	4.857	4.860	(0.979)	787253	160	82
31 1,2,4-Trichlorobenzene		180.00	4.929	4.943	(0.993)	793200	160	83
33 Naphthalene		128.00	4.988	4.990	(1.005)	3228741	160	83
34 4-Chloroaniline		127.00	5.059	5.062	(1.019)	1284076	160	82
35 Hexachlorobutadiene		225.00	5.166	5.180	(1.041)	382991	160	81
36 4-Chloro-3-methylphenol		107.00	5.545	5.559	(1.117)	878549	140	69
37 2-Methylnaphthalene		142.00	5.663	5.666	(1.141)	2017891	170	86
38 Hexachlorocyclopentadiene		237.00	5.888	5.903	(0.878)	436411	230	110
39 2,4,6-Trichlorophenol		196.00	5.971	5.986	(0.890)	446516	190	95

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						CN-COLUMN ( ng)	FINAL ( ug/L)
40 2,4,5-Trichlorophenol	196.00	6.019	6.021	(0.897)	423243	150	74
42 2-Chloronaphthalene	162.00	6.137	6.152	(0.915)	1657720	180	88
43 2-Nitroaniline	65.00	6.268	6.282	(0.935)	710475	150	76
44 Dimethylphthalate	163.00	6.493	6.507	(0.968)	1785673	150	76
45 2,6-Dinitrotoluene	165.00	6.552	6.567	(0.977)	428364	170	84 (Q)
46 Acenaphthylene	152.00	6.552	6.567	(0.977)	2580517	160	81
47 3-Nitroaniline	138.00	6.694	6.697	(0.998)	506352	160	80
49 Acenaphthene	153.00	6.742	6.756	(1.005)	1648029	170	87
50 2,4-Dinitrophenol	184.00	6.801	6.815	(1.014)	69896	340	170 (QM)
51 4-Nitrophenol	109.00	6.884	6.910	(1.026)	239846	160	82
52 Dibenzofuran	168.00	6.896	6.922	(1.028)	2049719	160	80
53 2,4-Dinitrotoluene	165.00	6.943	6.958	(1.035)	496648	160	82
54 Diethylphthalate	149.00	7.204	7.218	(1.074)	1813072	140	72
55 4-Chlorophenyl-phenylether	204.00	7.251	7.276	(1.081)	738019	190	94
56 Fluorene	166.00	7.239	7.266	(1.079)	1620793	160	78
57 4-Nitroaniline	138.00	7.311	7.325	(1.090)	429522	140	69
58 4,6-Dinitro-2-methylphenol	198.00	7.370	7.384	(0.901)	152927	270	130 (M)
59 n-Nitrosodiphenylamine	169.00	7.382	7.396	(0.903)	906859	180	91
60 1,2-Diphenylhydrazine	77.00	7.417	7.432	(0.907)	4752929	150	76
62 4-Bromophenyl-phenylether	248.00	7.737	7.763	(0.946)	377620	200	100
63 Hexachlorobenzene	283.70	7.879	7.906	(0.964)	372680	180	92
64 Pentachlorophenol	265.50	8.069	8.095	(0.987)	141415	200	100 (M)
66 Phenanthrene	178.00	8.199	8.226	(1.003)	2030552	180	92
67 Anthracene	178.00	8.247	8.273	(1.009)	2085842	180	91
68 Carbazole	167.00	8.413	8.451	(1.029)	1742614	170	85
69 Di-n-butylphthalate	149.00	8.839	8.877	(1.081)	3152542	170	87
70 Fluoranthene	202.00	9.396	9.434	(1.149)	1570134	160	80
71 Pyrene	202.00	9.621	9.659	(0.885)	1612220	190	94
73 Butylbenzylphthalate	149.00	10.332	10.382	(0.951)	1130735	160	82
74 3,3'-Dichlorobenzidine	252.00	10.842	10.892	(0.998)	474785	190	97
75 Benzo[a]anthracene	228.00	10.889	10.904	(1.002)	1033122	150	76
77 Chrysene	228.00	10.889	10.951	(1.002)	1033122	180	88
78 bis(2-Ethylhexyl)phthalate	149.00	10.960	11.034	(1.009)	1453374	160	79
79 Di-n-octylphthalate	149.00	11.695	11.781	(0.922)	2323993	170	85
80 Benzo[b]fluoranthene	252.00	12.169	12.243	(0.959)	896425	150	77
81 Benzo[k]fluoranthene	252.00	12.169	12.278	(0.959)	896425	160	80
82 Benzo[a]pyrene	252.00	12.619	12.705	(0.994)	780408	180	88
84 Indeno[1,2,3-cd]pyrene	276.00	14.350	14.447	(1.131)	787019	170	86
85 Dibenzo[a,h]anthracene	278.00	14.385	14.483	(1.134)	678554	180	90
86 Benzo[g,h,i]perylene	276.00	14.752	14.862	(1.162)	625258	160	82
\$ 3 2-Fluorophenol	112.00	2.819	2.822	(0.741)	1261695	160	78
\$ 4 Phenol-d5	99.00	3.542	3.533	(0.931)	1484456	140	72
\$ 61 2,4,6-Tribromophenol	329.70	7.512	7.538	(0.919)	197885	220	110 (R)
\$ 23 Nitrobenzene-d5	82.00	4.312	4.317	(0.869)	1431210	160	81 (R)
\$ 41 2-Fluorobiphenyl	172.00	6.043	6.057	(0.901)	1635257	160	82 (R)
\$ 72 Terphenyl-d14	244.00	9.799	9.849	(0.902)	1042653	190	93 (R)
* 11 1,4-Dichlorobenzene-d4	152.00	3.803	3.805	(1.000)	199114	40	
* 32 Naphthalene-d8	136.00	4.964	4.979	(1.000)	736441	40	
* 48 Acenaphthene-d10	164.00	6.706	6.721	(1.000)	321401	40	

Compounds	QUANT SIG				CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
						( ng)	( ug/L)
=====	----	--	-----	-----	-----	-----	-----
* 65 Phenanthrene-d10	188.00	8.176	8.202	(1.000)	352944	40	
* 76 Chrysene-d12	240.00	10.866	10.916	(1.000)	222549	40	
* 83 Perylene-d12	264.00	12.691	12.788	(1.000)	128599	40	
17 ortho-Cresol	108.00	4.064	4.054	(1.069)	1093871	150	74
20 meta,para-Cresol	108.00	4.194	4.185	(1.103)	1101739	150	77
96 Benzidine	184.00	9.538	9.577	(0.878)	525753	160	80

#### QC Flag Legend

- Q - Qualifier signal failed the ratio test.
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
AREA AND RT SUMMARY

Instrument ID: h.i  
Lab File ID: h151ic4.d  
Lab Smp Id:  
Analysis Type: SV  
Quant Type: ISTD  
Operator: LH  
Method File: /chem/h.i/h950531.b/hclpw.m  
Misc Info: 950531 STD160

Calibration Date: 05/31/95  
Calibration Time: 1509

Level: LOW  
Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	199114	74.24
32 Naphthalene-d8	440783	220392	881566	736441	67.08
48 Acenaphthene-d10	201424	100712	402848	321401	59.56
65 Phenanthrene-d10	261616	130808	523232	352944	34.91
76 Chrysene-d12	195160	97580	390320	222549	14.03
83 Perylene-d12	123342	61671	246684	128599	4.26

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.80	-0.07
32 Naphthalene-d8	4.98	4.48	5.48	4.96	-0.29
48 Acenaphthene-d10	6.72	6.22	7.22	6.71	-0.22
65 Phenanthrene-d10	8.20	7.70	8.70	8.18	-0.32
76 Chrysene-d12	10.92	10.42	11.42	10.87	-0.46
83 Perylene-d12	12.79	12.29	13.29	12.69	-0.76

AREA UPPER LIMIT = +100% of internal standard area.

AREA LOWER LIMIT = - 50% of internal standard area.

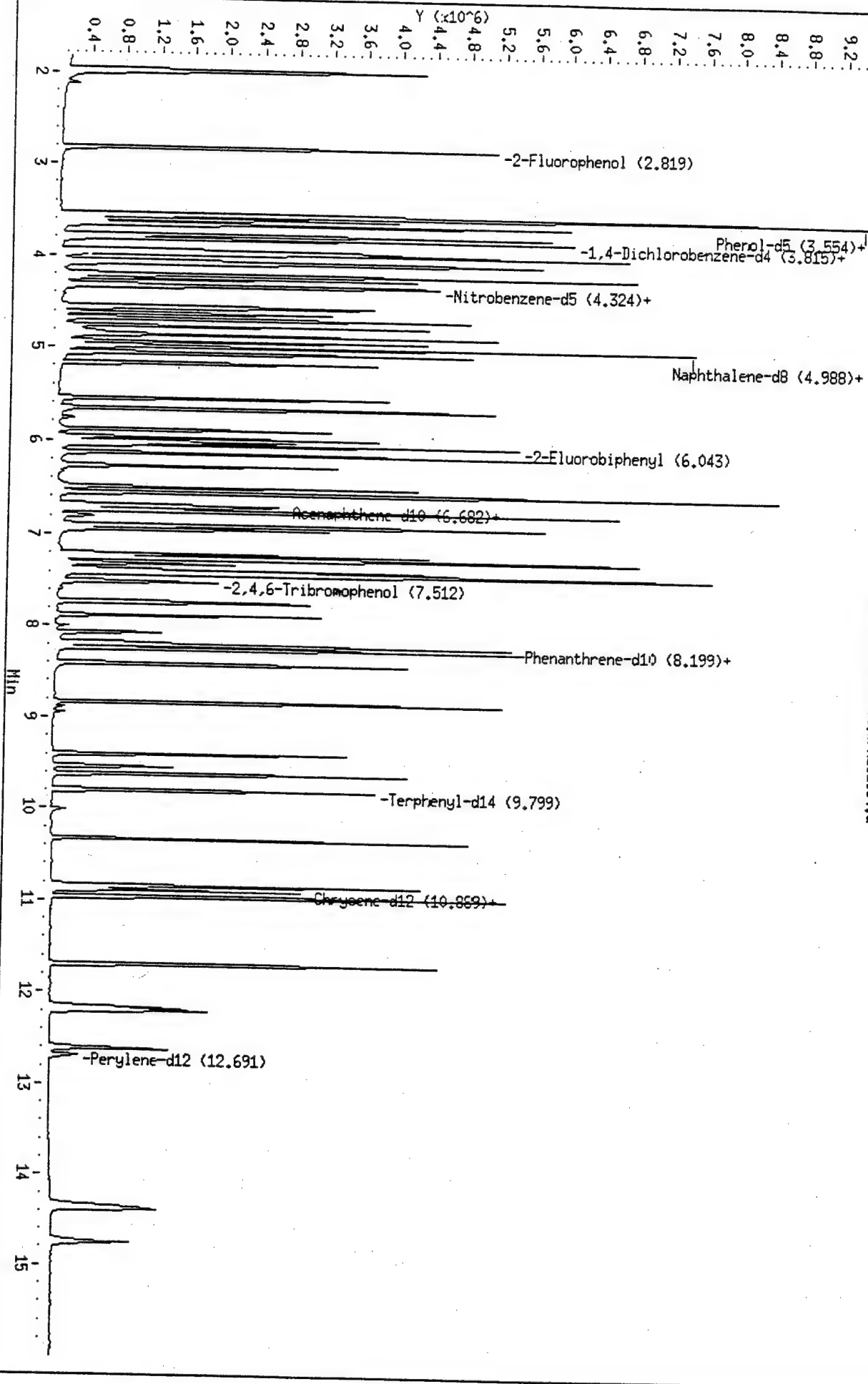
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.

RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c4.d  
Date : 31-MAY-95 14:26  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950531.b/h1511c4.d





SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h146cc1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 26-MAY-1995 13:43  
Init. Calibration Date(s): 05/24/95 05/24/95  
Init. Calibration Times: 15:37 17:27  
Method File: /chem/h.i/h950526.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
2 Pyridine	2.247	1.860	0.010	17.2	40.0
5 Phenol	2.191	1.962	0.800	10.5	25.0
6 Aniline	2.148	1.839	0.010	14.4	40.0
7 bis(2-Chloroethyl)ether	1.915	1.667	0.700	12.9	25.0
9 2-Chlorophenol	1.478	1.499	0.800	1.4	25.0
10 1,3-Dichlorobenzene	1.567	1.578	0.600	0.7	25.0
12 1,4-Dichlorobenzene	1.574	1.566	0.500	0.5	25.0
13 Benzyl alcohol	0.864	0.957	0.010	10.7	40.0
15 1,2-Dichlorobenzene	1.414	1.383	0.400	2.2	25.0
16 2-Methylphenol	1.441	1.379	0.700	4.3	25.0
18 bis(2-chloroisopropyl)ether	2.543	1.367	0.010	46.2	100.0
19 4-Methylphenol	1.373	1.288	0.600	6.2	25.0
21 N-Nitroso-di-n-propylamine	1.069	0.795	0.500	25.6	25.0
22 Hexachloroethane	0.680	0.663	0.300	2.5	25.0
24 Nitrobenzene	0.441	0.365	0.200	17.3	25.0
25 Isophorone	0.851	0.739	0.400	13.2	25.0
26 2-Nitrophenol	0.205	0.237	0.100	16.1	25.0
27 2,4-Dimethylphenol	0.379	0.404	0.200	6.5	25.0
28 Benzoic acid	0.093	0.203	0.010	118.5	100.0
29 bis(2-Chloroethoxy)methane	0.520	0.434	0.300	16.5	25.0
30 2,4-Dichlorophenol	0.249	0.277	0.200	11.1	25.0
31 1,2,4-Trichlorobenzene	0.261	0.274	0.200	5.2	25.0
33 Naphthalene	1.067	1.026	0.700	3.8	25.0
34 4-Chloroaniline	0.375	0.397	0.010	6.0	40.0
35 Hexachlorobutadiene	0.109	0.129	0.010	17.9	40.0
36 4-Chloro-3-methylphenol	0.294	0.298	0.200	1.5	25.0
37 2-Methylnaphthalene	0.601	0.605	0.400	0.7	25.0
38 Hexachlorocyclopentadiene	0.249	0.273	0.010	9.6	40.0
39 2,4,6-Trichlorophenol	0.317	0.372	0.200	17.3	25.0
40 2,4,5-Trichlorophenol	0.367	0.382	0.200	4.1	25.0
42 2-Chloronaphthalene	1.209	1.251	0.800	3.5	25.0
43 2-Nitroaniline	0.489	0.363	0.010	25.7	40.0
44 Dimethylphthalate	1.391	1.371	0.010	1.4	40.0
45 2,6-Dinitrotoluene	0.342	0.356	0.200	4.4	25.0
46 Acenaphthylene	2.038	2.030	1.300	0.4	25.0
47 3-Nitroaniline	0.381	0.356	0.010	6.7	40.0
49 Acenaphthene	1.213	1.174	0.800	3.2	25.0
50 2,4-Dinitrophenol	0.086	0.116	0.010	34.9	40.0
51 4-Nitrophenol	0.144	0.152	0.010	5.1	40.0
52 Dibenzofuran	1.574	1.514	0.800	3.8	25.0

SPL Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h146cc1.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 26-MAY-1995 13:43  
Init. Calibration Date(s): 05/24/95 05/24/95  
Init. Calibration Times: 15:37 17:27  
Method File: /chem/h.i/h950526.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
53 2,4-Dinitrotoluene	0.421	0.406	0.200	3.6	25.0
54 Diethylphthalate	1.464	1.367	0.010	6.6	40.0
55 4-Chlorophenyl-phenylether	0.487	0.425	0.400	12.7	25.0
56 Fluorene	1.188	0.990	0.900	16.6	25.0
57 4-Nitroaniline	0.348	0.271	0.010	21.9	40.0
58 4,6-Dinitro-2-methylphenol	0.136	0.173	0.010	27.6	40.0
59 n-Nitrosodiphenylamine	0.620	0.638	0.010	2.9	40.0
60 1,2-Diphenylhydrazine	2.948	2.261	0.010	23.3	40.0
62 4-Bromophenyl-phenylether	0.187	0.214	0.100	14.5	25.0
63 Hexachlorobenzene	0.182	0.206	0.100	13.1	25.0
64 Pentachlorophenol	0.085	0.098	0.050	15.0	25.0
66 Phenanthrene	1.332	1.238	0.700	7.1	25.0
67 Anthracene	1.249	1.134	0.700	9.2	25.0
68 Carbazole	1.152	0.977	0.010	15.2	40.0
69 Di-n-butylphthalate	2.115	1.802	0.010	14.8	40.0
70 Fluoranthene	1.015	0.825	0.600	18.7	25.0
71 Pyrene	2.081	1.913	0.600	8.1	25.0
73 Butylbenzylphthalate	1.430	1.398	0.010	2.3	40.0
74 3,3'-Dichlorobenzidine	0.385	0.420	0.010	9.1	40.0
75 Benzo[a]anthracene	1.281	1.317	0.800	2.8	25.0
77 Chrysene	1.159	1.114	0.700	3.9	25.0
78 bis(2-Ethylhexyl)phthalate	1.996	1.802	0.010	9.7	40.0
79 Di-n-octylphthalate	5.917	4.725	0.010	20.2	40.0
80 Benzo[b]fluoranthene	1.916	1.791	0.700	6.5	25.0
81 Benzo[k]fluoranthene	1.963	1.787	0.700	8.9	25.0
82 Benzo[a]pyrene	1.540	1.397	0.700	9.3	25.0
84 Indeno[1,2,3-cd]pyrene	1.337	1.276	0.500	4.5	25.0
85 Dibenz[a,h]anthracene	1.096	1.080	0.400	1.4	25.0
86 Benzo[g,h,i]perylene	1.083	1.056	0.500	2.5	25.0
\$ 3 2-Fluorophenol	1.562	1.799	0.600	15.2	25.0
\$ 4 Phenol-d5	1.994	1.853	0.800	7.0	25.0
\$ 61 2,4,6-Tribromophenol	0.070	0.096	0.010	37.1	40.0
\$ 23 Nitrobenzene-d5	0.443	0.388	0.200	12.4	25.0
\$ 41 2-Fluorobiphenyl	1.310	1.396	0.700	6.6	25.0
\$ 72 Terphenyl-d14	1.108	1.122	0.500	1.3	25.0
17 ortho-Cresol	1.433	1.379	0.700	3.8	25.0
20 meta,para-Cresol	1.373	1.288	0.600	6.2	25.0
96 Benzidine	0.016	0.019	0.010	20.2	40.0

SPL Houston Labs

Data file : /chem/h.i/h950526.b/h146cc1.d

Lab Smp Id:

Inj Date : 26-MAY-1995 13:43

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950526 STD050

Comment :

Method : /chem/h.i/h950526.b/hclpw.m

Meth Date : 26-May-1995 14:06 liping

Cal Date : 26-MAY-1995 13:43

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Target Version: 3.10

Quant Type: ISTD

Cal File: h146cc1.d

Continuing Calibration Sample

Compound Sublist: std.sub

Compounds	QUANT SIG				RESPONSE	AMOUNTS	
	MASS	RT	EXP RT	REL RT		CAL-AMT ( ng)	ON-COL ( ng)
-----	----	--	-----	-----	-----	-----	-----
2 Pyridine	79.00	2.220	2.220	(0.544)	577494	50	41
5 Phenol	94.00	3.819	3.819	(0.936)	609090	50	45
6 Aniline	93.00	3.819	3.819	(0.936)	570875	50	43 (M)
7 bis(2-Chloroethyl)ether	93.00	3.855	3.855	(0.945)	517675	50	44
9 2-Chlorophenol	128.00	3.926	3.926	(0.962)	465309	50	51
10 1,3-Dichlorobenzene	146.00	4.044	4.044	(0.991)	490052	50	50
12 1,4-Dichlorobenzene	146.00	4.092	4.092	(1.003)	486142	50	50
13 Benzyl alcohol	108.00	4.210	4.210	(1.032)	297173	50	55
15 1,2-Dichlorobenzene	146.00	4.258	4.258	(1.044)	429401	50	49
16 2-Methylphenol	108.00	4.341	4.341	(1.064)	428127	50	48
18 bis(2-chloroisopropyl)ether	45.00	4.341	4.341	(1.064)	424486	50	27
19 4-Methylphenol	108.00	4.471	4.471	(1.096)	399851	50	47
21 N-Nitroso-di-n-propylamine	70.00	4.471	4.471	(1.096)	246914	50	37
22 Hexachloroethane	117.00	4.530	4.530	(1.110)	205780	50	49
24 Nitrobenzene	77.00	4.613	4.613	(0.876)	385216	50	41
25 Isophorone	82.00	4.827	4.827	(0.917)	779888	50	43
26 2-Nitrophenol	139.00	4.910	4.910	(0.932)	250721	50	58
27 2,4-Dimethylphenol	107.00	4.957	4.957	(0.941)	426043	50	53
28 Benzoic acid	122.00	5.111	5.111	(0.971)	214739	50	110
29 bis(2-Chloroethoxy)methane	93.00	5.028	5.028	(0.955)	458503	50	42
30 2,4-Dichlorophenol	162.00	5.158	5.158	(0.980)	292089	50	56
31 1,2,4-Trichlorobenzene	180.00	5.218	5.218	(0.991)	289467	50	52
33 Naphthalene	128.00	5.277	5.277	(1.002)	1083554	50	48
34 4-Chloroaniline	127.00	5.348	5.348	(1.016)	419391	50	53
35 Hexachlorobutadiene	225.00	5.455	5.455	(1.036)	135906	50	59
36 4-Chloro-3-methylphenol	107.00	5.846	5.846	(1.110)	314876	50	51
37 2-Methylnaphthalene	142.00	5.964	5.964	(1.133)	639156	50	50
38 Hexachlorocyclopentadiene	237.00	6.189	6.189	(0.882)	108292	50	55
39 2,4,6-Trichlorophenol	196.00	6.272	6.272	(0.894)	147579	50	59

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-CCL ( ng)
-----	----	==	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.332	6.332	(0.902)	151302	50	52
42 2-Chloronaphthalene	162.00	6.438	6.438	(0.917)	495864	50	52
43 2-Nitroaniline	65.00	6.569	6.569	(0.936)	143834	50	37 (a)
44 Dimethylphthalate	163.00	6.782	6.782	(0.966)	543378	50	49
45 2,6-Dinitrotoluene	165.00	6.853	6.853	(0.976)	141261	50	52
46 Acenaphthylene	152.00	6.865	6.865	(0.978)	804551	50	50
47 3-Nitroaniline	138.00	6.995	6.995	(0.997)	140946	50	47 (a)
49 Acenaphthene	153.00	7.054	7.054	(1.005)	465417	50	48
50 2,4-Dinitrophenol	184.00	7.114	7.114	(1.014)	45824	50	67 (M)
51 4-Nitrophenol	109.00	7.220	7.220	(1.029)	60095	50	52
52 Dibenzofuran	158.00	7.208	7.208	(1.027)	599973	50	48
53 2,4-Dinitrotoluene	165.00	7.256	7.256	(1.034)	160779	50	48
54 Diethylphthalate	149.00	7.505	7.505	(1.069)	541836	50	47
55 4-Chlorophenyl-phenylether	204.00	7.564	7.564	(1.078)	168476	50	44
56 Fluorene	166.00	7.564	7.564	(1.078)	392442	50	42
57 4-Nitroaniline	138.00	7.623	7.623	(1.086)	107553	50	39 (a)
58 4,6-Dinitro-2-methylphenol	198.00	7.683	7.683	(0.898)	70161	50	64
59 n-Nitrosodiphenylamine	169.00	7.694	7.694	(0.899)	258230	50	51
60 1,2-Diphenylhydrazine	77.00	7.718	7.718	(0.902)	914727	50	38
62 4-Bromophenyl-phenylether	248.00	8.050	8.050	(0.940)	86646	50	57
63 Hexachlorobenzene	283.70	8.216	8.216	(0.960)	83228	50	56
64 Pentachlorophenol	265.50	8.405	8.405	(0.987)	39459	50	58 (M)
66 Phenanthrene	178.00	8.536	8.536	(1.003)	500860	50	46 (M)
67 Anthracene	178.00	8.583	8.583	(1.003)	458643	50	45
68 Carbazole	167.00	8.749	8.749	(1.022)	395170	50	42
69 Di-n-butylphthalate	149.00	9.152	9.152	(1.069)	728896	50	43
70 Fluoranthene	202.00	9.744	9.744	(1.138)	333862	50	41
71 Pyrene	202.00	9.981	9.981	(0.885)	324258	50	46
73 Butylbenzylphthalate	149.00	10.669	10.669	(0.946)	236973	50	49
74 3,3'-Dichlorobenzidine	252.00	11.238	11.238	(0.997)	71185	50	54
75 Benzo[a]anthracene	228.00	11.261	11.261	(0.999)	223306	50	51 (M)
77 Chrysene	228.00	11.309	11.309	(1.003)	188823	50	48
78 bis(2-Ethylhexyl)phthalate	149.00	11.356	11.356	(1.007)	305476	50	45
79 Di-n-octylphthalate	149.00	12.162	12.162	(0.913)	441289	50	40
80 Benzo[b]fluoranthene	252.00	12.731	12.731	(0.956)	167281	50	47
81 Benzo[k]fluoranthene	252.00	12.766	12.766	(0.958)	166945	50	46
82 Benzo[a]pyrene	252.00	13.228	13.228	(0.993)	130489	50	45
84 Indeno[1,2,3-cd]pyrene	276.00	15.089	15.089	(1.133)	119186	50	48
85 Dibenz[a,h]anthracene	278.00	15.113	15.113	(1.134)	100897	50	49
86 Benzo[g,h,i]perylene	276.00	15.551	15.551	(1.167)	98648	50	49
\$ 3 2-Fluorophenol	112.00	3.085	3.085	(0.756)	558461	50	58
\$ 4 Phenol-d5	99.00	3.807	3.807	(0.933)	575406	50	46
\$ 61 2,4,6-Tribromophenol	329.70	7.837	7.837	(0.916)	38656	50	68
\$ 23 Nitrobenzene-d5	82.00	4.590	4.590	(0.872)	410068	50	44
\$ 41 2-Fluorobiphenyl	172.00	6.343	6.343	(0.904)	553246	50	53
\$ 72 Terphenyl-d14	244.00	10.147	10.147	(0.900)	190256	50	51
* 11 1,4-Dichlorobenzene-d4	152.00	4.080	4.080	(1.000)	248407	40	
* 32 Naphthalene-d8	136.00	5.265	5.265	(1.000)	844661	40	
* 48 Acenaphthene-d10	164.00	7.019	7.019	(1.000)	317019	40	

Compounds	QUANT SIG					AMOUNTS	
	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT ( ng)	ON-COL ( ng)
65 Phenanthrene-d10	188.00	8.512	8.512	(1.000)	323627	40	(M)
76 Chrysene-d12	240.00	11.273	11.273	(1.000)	135631	40	
83 Perylene-d12	264.00	13.323	13.323	(1.000)	74718	40	
17 ortho-Cresol	108.00	4.341	4.341	(1.064)	428127	50	48
20 meta,para-Cresol	108.00	4.471	4.471	(1.096)	399851	50	47
96 Benzidine	184.00	10.373	10.373	(0.920)	3303	50	50 (M)

# QC Flag Legend

- a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
- M - Compound response manually integrated.

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INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h146cc1.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950526.b/hclps.m  
 Misc Info: 950526 STD050

Calibration Date: 05/26/95  
 Calibration Time: 1343

Level: LOW  
 Sample Type: WATER

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	248407	124204	496814	248407	0.00
32 Naphthalene-d8	844661	422330	1689322	844661	0.00
48 Acenaphthene-d10	317019	158510	634038	317019	0.00
65 Phenanthrene-d10	323627	161814	647254	323627	0.00
76 Chrysene-d12	135631	67816	271262	135631	0.00
83 Perylene-d12	74718	37359	149436	74718	0.00

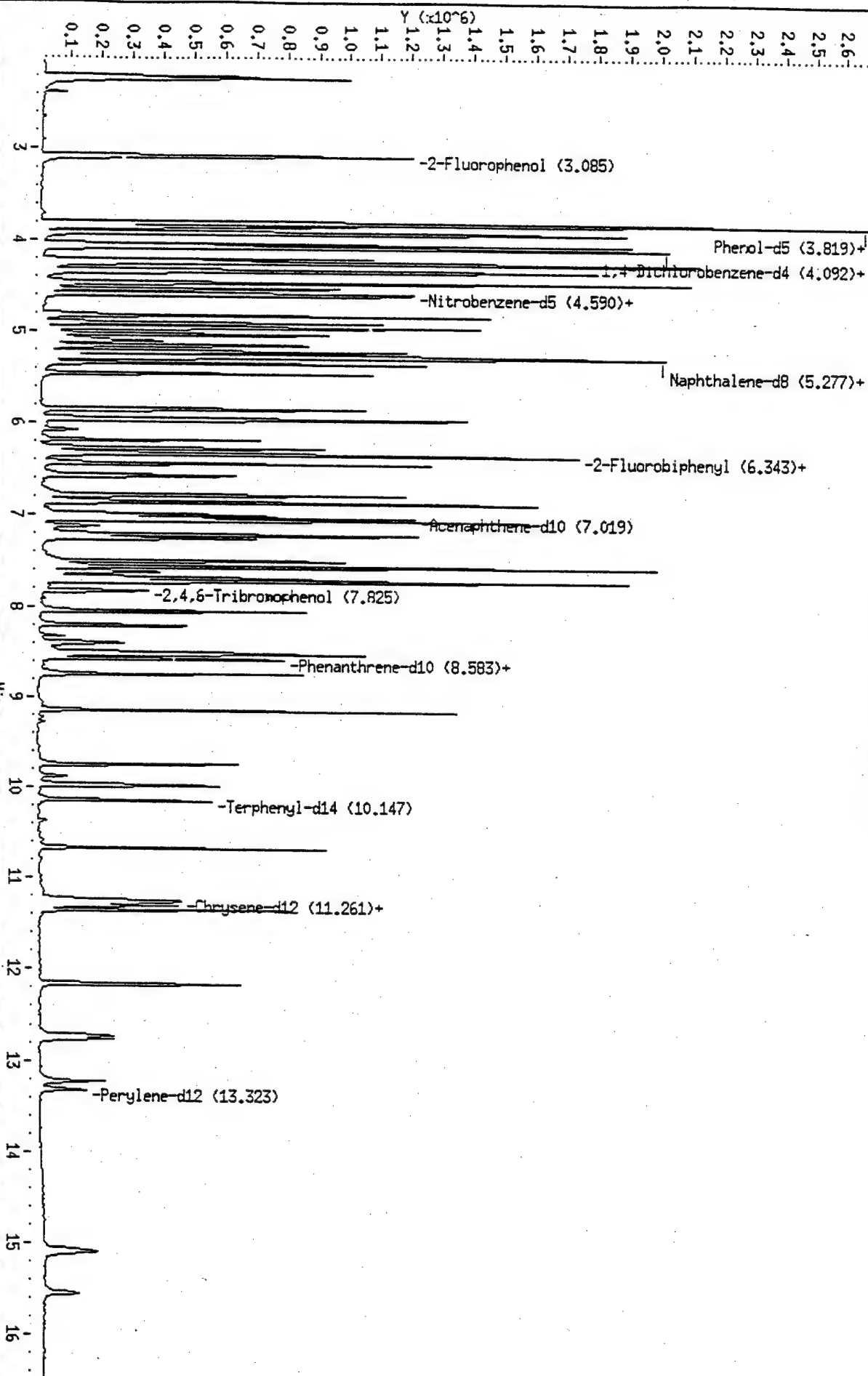
COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	4.08	3.58	4.58	4.08	0.00
32 Naphthalene-d8	5.27	4.77	5.77	5.27	0.00
48 Acenaphthene-d10	7.02	6.52	7.52	7.02	0.00
65 Phenanthrene-d10	8.51	8.01	9.01	8.51	0.00
76 Chrysene-d12	11.27	10.77	11.77	11.27	0.00
83 Perylene-d12	13.32	12.82	13.82	13.32	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950526.b/h146ccl.d  
Date : 26-MAY-95 13:43  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25

/chem/h.1/h950526.b/h146ccl.d



SPL Houston Labs

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h151ic6.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 31-MAY-1995 15:09  
Init. Calibration Date(s): 05/31/95 05/31/95  
Init. Calibration Times: 13:39 14:03  
Method File: /chem/h.i/h950531.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	%D	MAX %D
2 Pyridine	2.453	2.674	0.010	9.0	40.0
5 Phenol	2.311	2.379	0.800	2.9	25.0
6 Aniline	2.526	2.547	0.010	0.8	40.0
7 bis(2-Chloroethyl)ether	2.047	2.192	0.700	7.1	25.0
9 2-Chlorophenol	1.590	1.581	0.800	0.6	25.0
10 1,3-Dichlorobenzene	1.675	1.611	0.600	3.8	25.0
12 1,4-Dichlorobenzene	1.670	1.557	0.500	6.7	25.0
13 Benzyl alcohol	1.004	1.063	0.010	5.9	40.0
15 1,2-Dichlorobenzene	1.540	1.496	0.400	2.9	25.0
16 2-Methylphenol	1.419	1.479	0.700	4.2	25.0
18 bis(2-chloroisopropyl)ether	3.211	3.303	0.010	2.9	40.0
19 4-Methylphenol	1.408	1.439	0.600	2.2	25.0
21 N-Nitroso-di-n-propylamine	1.320	1.428	0.500	8.2	25.0
22 Hexachloroethane	0.795	0.825	0.300	3.8	25.0
24 Nitrobenzene	0.515	0.514	0.200	0.2	25.0
25 Isophorone	0.950	0.982	0.400	3.3	25.0
26 2-Nitrophenol	0.185	0.175	0.100	5.4	25.0
27 2,4-Dimethylphenol	0.410	0.420	0.200	2.4	25.0
28 Benzoic acid	0.097	0.082	0.010	15.1	40.0
29 bis(2-Chloroethoxy)methane	0.541	0.555	0.300	2.6	25.0
30 2,4-Dichlorophenol	0.260	0.259	0.200	0.5	25.0
31 1,2,4-Trichlorobenzene	0.267	0.260	0.200	2.6	25.0
33 Naphthalene	1.092	1.061	0.700	2.9	25.0
34 4-Chloroaniline	0.424	0.427	0.010	0.6	40.0
35 Hexachlorobutadiene	0.131	0.129	0.010	2.0	40.0
36 4-Chloro-3-methylphenol	0.320	0.345	0.200	8.0	25.0
37 2-Methylnaphthalene	0.637	0.634	0.400	0.4	25.0
38 Hexachlorocyclopentadiene	0.283	0.240	0.010	15.3	40.0
39 2,4,6-Trichlorophenol	0.310	0.292	0.200	5.9	25.0
40 2,4,5-Trichlorophenol	0.371	0.355	0.200	4.2	25.0
42 2-Chloronaphthalene	1.223	1.175	0.800	4.0	25.0
43 2-Nitroaniline	0.576	0.577	0.010	0.3	40.0
44 Dimethylphthalate	1.397	1.451	0.010	3.9	40.0
45 2,6-Dinitrotoluene	0.315	0.317	0.200	0.5	25.0
46 Acenaphthylene	2.059	1.983	1.300	3.7	25.0
47 3-Nitroaniline	0.392	0.393	0.010	0.3	40.0
49 Acenaphthene	1.223	1.183	0.800	3.3	25.0
50 2,4-Dinitrophenol	0.034	0.025	0.010	26.0	40.0
51 4-Nitrophenol	0.194	0.182	0.010	6.1	40.0
52 Dibenzofuran	1.630	1.597	0.800	2.0	25.0



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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: h.i  
Lab File ID: h151ic6.d  
Analysis Type: WATER  
Lab Sample ID:  
Quant Type: ISTD

Injection Date: 31-MAY-1995 15:09  
Init. Calibration Date(s): 05/31/95 05/31/95  
Init. Calibration Times: 13:39 14:03  
Method File: /chem/h.i/h950531.b/hclpw.m

COMPOUND	RRF	RF50	MIN RRF	MAX %D	MAX %D
53 2,4-Dinitrotoluene	0.372	0.379	0.200	1.9	25.0
54 Diethylphthalate	1.520	1.564	0.010	2.9	40.0
55 4-Chlorophenyl-phenylether	0.521	0.491	0.400	5.7	25.0
56 Fluorene	1.294	1.285	0.900	0.6	25.0
57 4-Nitroaniline	0.362	0.389	0.010	7.6	40.0
58 4,6-Dinitro-2-methylphenol	0.069	0.065	0.010	6.8	100.0
59 n-Nitrosodiphenylamine	0.615	0.564	0.010	8.2	40.0
60 1,2-Diphenylhydrazine	3.675	3.534	0.010	3.8	40.0
62 4-Bromophenyl-phenylether	0.230	0.209	0.100	9.4	25.0
63 Hexachlorobenzene	0.251	0.229	0.100	8.8	25.0
64 Pentachlorophenol	0.076	0.080	0.050	4.6	25.0
66 Phenanthrene	1.336	1.253	0.700	6.2	25.0
67 Anthracene	1.367	1.294	0.700	5.4	25.0
68 Carbazole	1.215	1.156	0.010	4.8	40.0
69 Di-n-butylphthalate	2.183	2.060	0.010	5.6	40.0
70 Fluoranthene	1.152	1.117	0.600	3.0	25.0
71 Pyrene	1.658	1.533	0.600	7.5	25.0
73 Butylbenzylphthalate	1.304	1.247	0.010	4.4	40.0
74 3,3'-Dichlorobenzidine	0.474	0.438	0.010	7.6	40.0
75 Benzo[a]anthracene	1.269	1.216	0.800	4.1	25.0
77 Chrysene	1.133	1.058	0.700	6.6	25.0
78 bis(2-Ethylhexyl)phthalate	1.726	1.651	0.010	4.4	40.0
79 Di-n-octylphthalate	4.490	4.268	0.010	4.9	100.0
80 Benzo[b]fluoranthene	1.794	1.800	0.700	0.3	25.0
81 Benzo[k]fluoranthene	1.799	1.750	0.700	2.7	25.0
82 Benzo[a]pyrene	1.455	1.385	0.700	4.8	25.0
84 Indeno[1,2,3-cd]pyrene	1.476	1.415	0.500	4.2	25.0
85 Dibenz[a,h]anthracene	1.243	1.177	0.400	5.3	25.0
86 Benzo[g,h,i]perylene	1.208	1.183	0.500	2.1	25.0
\$ 3 2-Fluorophenol	1.733	1.621	0.600	6.5	25.0
\$ 4 Phenol-d5	2.070	2.081	0.800	0.5	25.0
\$ 61 2,4,6-Tribromophenol	0.113	0.100	0.010	11.7	40.0
\$ 23 Nitrobenzene-d5	0.500	0.480	0.200	4.0	25.0
\$ 41 2-Fluorobiphenyl	1.292	1.233	0.700	4.6	25.0
\$ 72 Terphenyl-d14	1.084	1.005	0.500	7.3	25.0
17 ortho-Cresol	1.419	1.479	0.700	4.2	25.0
20 meta,para-Cresol	1.408	1.439	0.600	2.2	25.0
96 Benzidine	0.601	0.590	0.010	1.8	40.0

SPL Houston Labs

Data file : /chem/h.i/h950531.b/h151ic6.d

Lab Smp Id:

Inj Date : 31-MAY-1995 15:09

Operator : LH

Inst ID: h.i

Smp Info : STD-8270W/1X

Misc Info : 950531 STD050

Comment :

Method : /chem/h.i/h950531.b/hclpw.m

Meth Date : 31-May-1995 16:05 liping

Quant Type: ISTD

Cal Date : 31-MAY-1995 15:09

Cal File: h151ic6.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: std.sub

Target Version: 3.10

Compounds	QUANT SIG	CONCENTRATIONS						
		MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN	FINAL
							( ng)	( ug/L)
-----	----	----	--	-----	-----	-----	-----	-----
2 Pyridine	79.00	1.980	1.980	(0.520)	381957	50	25	
5 Phenol	94.00	3.545	3.545	(0.931)	339871	50	25	
6 Aniline	93.00	3.545	3.545	(0.931)	363825	50	25	
7 bis(2-Chloroethyl)ether	93.00	3.592	3.592	(0.944)	313152	50	25	
9 2-Chlorophenol	128.00	3.651	3.651	(0.960)	225798	50	25	
10 1,3-Dichlorobenzene	146.00	3.770	3.770	(0.991)	230091	50	25	
12 1,4-Dichlorobenzene	146.00	3.817	3.817	(1.003)	222401	50	25	
13 Benzyl alcohol	108.00	3.936	3.936	(1.034)	151878	50	25	
15 1,2-Dichlorobenzene	146.00	3.983	3.983	(1.047)	213746	50	25	
16 2-Methylphenol	108.00	4.054	4.054	(1.065)	211218	50	25	
18 bis(2-chloroisopropyl)ether	45.00	4.078	4.078	(1.072)	471874	50	25	
19 4-Methylphenol	108.00	4.185	4.185	(1.100)	205508	50	25	
21 N-Nitroso-di-n-propylamine	70.00	4.196	4.196	(1.103)	204007	50	25	
22 Hexachloroethane	117.00	4.256	4.256	(1.118)	117904	50	25	
24 Nitrobenzene	77.00	4.327	4.327	(0.869)	283127	50	25	
25 Isophorone	82.00	4.552	4.552	(0.914)	540834	50	25	
26 2-Nitrophenol	139.00	4.623	4.623	(0.929)	96524	50	25	
27 2,4-Dimethylphenol	107.00	4.682	4.682	(0.940)	231433	50	25	
28 Benzoic acid	122.00	4.801	4.801	(0.964)	45166	50	25	
29 bis(2-Chloroethoxy)methane	93.00	4.765	4.765	(0.957)	305804	50	25	
30 2,4-Dichlorophenol	162.00	4.860	4.860	(0.976)	142725	50	25	
31 1,2,4-Trichlorobenzene	180.00	4.943	4.943	(0.993)	143025	50	25	
33 Naphthalene	128.00	4.990	4.990	(1.002)	584560	50	25	
34 4-Chloroaniline	127.00	5.062	5.062	(1.017)	235323	50	25	
35 Hexachlorobutadiene	225.00	5.180	5.180	(1.040)	70919	50	25	
36 4-Chloro-3-methylphenol	107.00	5.559	5.559	(1.117)	190207	50	25	
37 2-Methylnaphthalene	142.00	5.666	5.666	(1.138)	349367	50	25	
38 Hexachlorocyclopentadiene	237.00	5.903	5.903	(0.878)	60387	50	25	
39 2,4,6-Trichlorophenol	196.00	5.986	5.986	(0.891)	73501	50	25	

Compounds	QUANT SIG					CONCENTRATIONS	
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)
-----	----	==	-----	-----	-----	-----	-----
40 2,4,5-Trichlorophenol	196.00	6.021	6.021	(0.896)	89453	50	25
42 2-Chloronaphthalene	162.00	6.152	6.152	(0.915)	295802	50	25
43 2-Nitroaniline	65.00	6.282	6.282	(0.935)	145379	50	25
44 Dimethylphthalate	163.00	6.507	6.507	(0.968)	365363	50	25
45 2,6-Dinitrotoluene	165.00	6.567	6.567	(0.977)	79786	50	25
46 Acenaphthylene	152.00	6.567	6.567	(0.977)	499162	50	25
47 3-Nitroaniline	138.00	6.697	6.697	(0.996)	98902	50	25
49 Acenaphthene	153.00	6.756	6.756	(1.005)	297851	50	25
50 2,4-Dinitrophenol	184.00	6.815	6.815	(1.014)	6383	50	25 (M)
51 4-Nitrophenol	109.00	6.910	6.910	(1.028)	45806	50	25
52 Dibenzofuran	168.00	6.922	6.922	(1.030)	402130	50	25
53 2,4-Dinitrotoluene	165.00	6.958	6.958	(1.035)	95419	50	25
54 Diethylphthalate	149.00	7.218	7.218	(1.074)	393874	50	25
55 4-Chlorophenyl-phenylether	204.00	7.278	7.278	(1.083)	123652	50	25
56 Fluorene	166.00	7.266	7.266	(1.081)	323624	50	25
57 4-Nitroaniline	138.00	7.325	7.325	(1.090)	98042	50	25
58 4,6-Dinitro-2-methylphenol	198.00	7.384	7.384	(0.900)	21106	50	25 (M)
59 n-Nitrosodiphenylamine	169.00	7.396	7.396	(0.902)	184449	50	25
60 1,2-Diphenylhydrazine	77.00	7.432	7.432	(0.906)	1155693	50	25
62 4-Bromophenyl-phenylether	248.00	7.763	7.763	(0.947)	68283	50	25
63 Hexachlorobenzene	283.70	7.906	7.906	(0.964)	74795	50	25
64 Pentachlorophenol	265.50	8.095	8.095	(0.987)	26129	50	25 (M)
66 Phenanthrene	178.00	8.226	8.226	(1.003)	409912	50	25
67 Anthracene	178.00	8.273	8.273	(1.009)	423089	50	25
68 Carbazole	167.00	8.451	8.451	(1.030)	378067	50	25
69 Di-n-butylphthalate	149.00	8.877	8.877	(1.082)	673666	50	25
70 Fluoranthene	202.00	9.434	9.434	(1.150)	365338	50	25
71 Pyrene	202.00	9.659	9.659	(0.885)	374033	50	25
73 Butylbenzylphthalate	149.00	10.382	10.382	(0.951)	304084	50	25
74 3,3'-Dichlorobenzidine	252.00	10.892	10.892	(0.998)	106972	50	25
75 Benzo[a]anthracene	228.00	10.904	10.904	(0.999)	296729	50	25
77 Chrysene	228.00	10.951	10.951	(1.003)	258173	50	25
78 bis(2-Ethylhexyl)phthalate	149.00	11.034	11.034	(1.011)	402654	50	25
79 Di-n-octylphthalate	149.00	11.781	11.781	(0.921)	658002	50	25
80 Benzo[b]fluoranthene	252.00	12.243	12.243	(0.957)	277456	50	25
81 Benzo[k]fluoranthene	252.00	12.278	12.278	(0.960)	269838	50	25
82 Benzo[a]pyrene	252.00	12.705	12.705	(0.994)	213543	50	25
84 Indeno[1,2,3-cd]pyrene	276.00	14.447	14.447	(1.130)	218143	50	25
85 Dibenz[a,h]anthracene	278.00	14.483	14.483	(1.133)	181511	50	25
86 Benzo[g,h,i]perylene	276.00	14.862	14.862	(1.162)	182378	50	25
\$ 3 2-Fluorophenol	112.00	2.822	2.822	(0.742)	231511	50	25
\$ 4 Phenol-d5	99.00	3.533	3.533	(0.928)	297261	50	25
\$ 61 2,4,6-Tribromophenol	329.70	7.538	7.538	(0.919)	32558	50	25
\$ 23 Nitrobenzene-d5	82.00	4.315	4.315	(0.867)	264640	50	25
\$ 41 2-Fluorobiphenyl	172.00	6.057	6.057	(0.901)	310387	50	25
\$ 72 Terphenyl-d14	244.00	9.849	9.849	(0.902)	245238	50	25
* 11 1,4-Dichlorobenzene-d4	152.00	3.805	3.805	(1.000)	114276	40	
* 32 Naphthalene-d8	136.00	4.979	4.979	(1.000)	440783	40	
* 48 Acenaphthene-d10	164.00	6.721	6.721	(1.000)	201424	40	

Compounds	QUANT SIG					CONCENTRATIONS		
	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ng)	FINAL ( ug/L)	
*****	----	--	-----	-----	-----	-----	-----	
* 65 Phenanthrene-d10	188.00	8.202	8.202	(1.000)	261616	40		
* 76 Chrysene-d12	240.00	10.916	10.916	(1.000)	195160	40		
* 83 Perylene-d12	264.00	12.788	12.788	(1.000)	123342	40		
17 ortho-Cresol	108.00	4.054	4.054	(1.065)	211218	50	25	
20 meta,para-Cresol	108.00	4.185	4.185	(1.100)	205508	50	25	
96 Benzidine	184.00	9.577	9.577	(0.877)	144034	50	25	

#### QC Flag Legend

M - Compound response manually integrated.

SPL Houston Labs

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: h.i  
 Lab File ID: h151ic6.d  
 Lab Smp Id:  
 Analysis Type: SV  
 Quant Type: ISTD  
 Operator: LH  
 Method File: /chem/h.i/h950531.b/hclpw.m  
 Misc Info: 950531 STD050

Calibration Date: 05/31/95  
 Calibration Time: 1509

Level: LOW  
 Sample Type: WATER

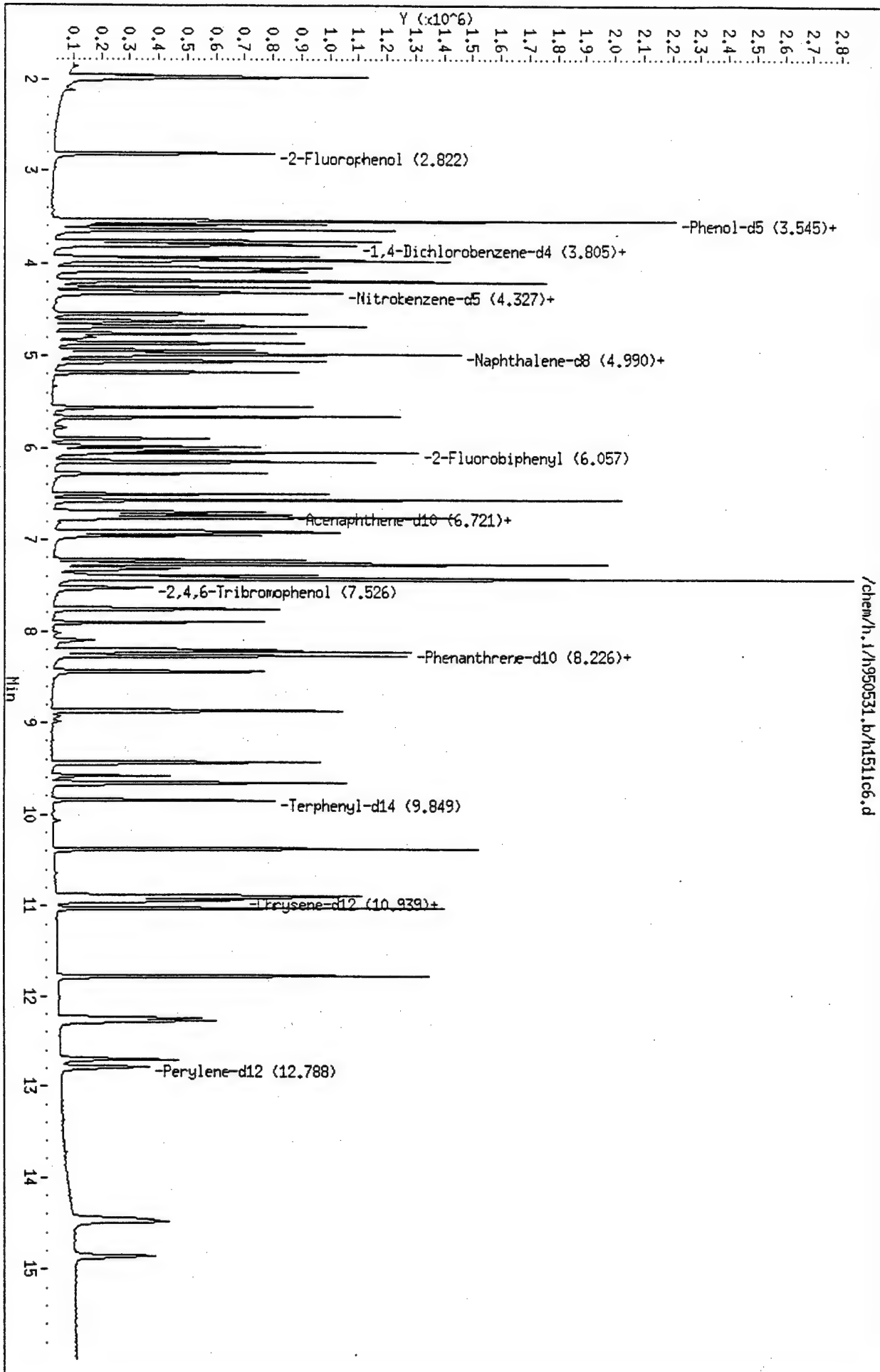
COMPOUND	STANDARD	AREA LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	114276	57138	228552	114276	0.00
32 Naphthalene-d8	440783	220392	881566	440783	0.00
48 Acenaphthene-d10	201424	100712	402848	201424	0.00
65 Phenanthrene-d10	261616	130808	523232	261616	0.00
76 Chrysene-d12	195160	97580	390320	195160	0.00
83 Perylene-d12	123342	61671	246684	123342	0.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	% DIFF
		LOWER	UPPER		
11 1,4-Dichlorobenzene-	3.81	3.31	4.31	3.81	0.00
32 Naphthalene-d8	4.98	4.48	5.48	4.98	0.00
48 Acenaphthene-d10	6.72	6.22	7.22	6.72	0.00
65 Phenanthrene-d10	8.20	7.70	8.70	8.20	0.00
76 Chrysene-d12	10.92	10.42	11.42	10.92	0.00
83 Perylene-d12	12.79	12.29	13.29	12.79	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem/h.1/h950531.b/h1511c6.d  
Date : 31-MAY-95 15:09  
Client ID:  
Sample Info: STD-8270M/1X  
Volume Injected (ul): 2.0  
Column phase:

Instrument: h.1  
Operator: LH  
Column diameter: 0.25





**\*\* SPL BATCH QUALITY CONTROL REPORT \*\***  
METHOD 601 \*

PAGE **HOUSTON LABORATORY**  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_F950525135200

**LABORATORY CONTROL SAMPLE**

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result	Recovery	
			<1>	%	
Dichlorodifluoromethane	ND	20	12	60.0	1 - 200
Chloromethane	ND	20	15	75.0	1 - 193
Vinyl chloride	ND	20	15	75.0	28 - 163
Bromomethane	ND	20	15	75.0	1 - 144
Chloroethane	ND	20	17	85.0	46 - 137
Trichlorofluoromethane	ND	20	17	85.0	21 - 156
1,1-Dichloroethene	ND	20	14	70.0	28 - 167
Methylene chloride	ND	20	25	125	25 - 162
Trans-1,2-Dichloroethene	ND	20	20	100	38 - 155
1,1-Dichloroethane	ND	20	22	110	34 - 132
Chloroform	ND	20	24	120	49 - 133
1,1,1-Trichloroethane	ND	20	22	110	41 - 138
Carbon tetrachloride	ND	20	22	110	43 - 143
1,2-Dichloroethane	ND	20	23	115	51 - 147
2-Chloroethylvinyl ether	ND	20	21	105	14 - 186
Trichloroethene	ND	20	24	120	35 - 146
1,2-Dichloropropane	ND	20	23	115	44 - 156
Bromodichloromethane	ND	20	22	110	42 - 172
cis-1,3-Dichloropropene	ND	20	26	130	22 - 178
trans-1,3-Dichloropropene	ND	20	23	115	33 - 178
1,1,2-Trichloroethane	ND	20	26	130	39 - 136
Tetrachloroethene	ND	20	25	125	26 - 162
Dibromochloromethane	ND	20	24	120	24 - 191
Chlorobenzene	ND	20	25	125	38 - 150
Bromoform	ND	20	23	115	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	25	125	8 - 184
1,3-Dichlorobenzene	ND	20	25	125	7 - 187
1,4-Dichlorobenzene	ND	20	25	125	42 - 143
1,2-Dichlorobenzene	ND	20	26	130	1 - 208

**MATRIX SPIKES**

S P I K E C O M P O U N D S	Sample Results   
--------------------------------	---

**SAMPLES IN BATCH(SPL ID):**

9505700-05A 9505776-04A 9505679-01A 9505679-02A  
9505767-03E 9505767-01E 9505714-08A 9505791-04B  
9505791-03B 9505792-01A 9505767-05E 9505767-06E  
9505791-02B 9505791-01B 9505719-01A 9505791-05B  
9505029-24A 9505029-23A

  
Idelis Williams, QC Officer



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*  
METHOD 601 \*

PAGE HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_F950525135200

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results  <2>	Spike Added  <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result	Recovery	Result	Recovery		RPD	Recovery Range
			<1>	<4>	<1>	<5>		Max.	
Chloromethane	ND	20	24	120	21	105	13.3	20	1 - 193
Vinyl chloride	ND	20	22	110	22	110	0	20	28 - 163
Bromomethane	ND	20	23	115	22	110	4.44	20	1 - 144
Chloroethane	ND	20	25	125	25	125	0	20	46 - 137
Trichlorofluoromethane	ND	20	23	115	21	105	9.09	20	21 - 156
1,1-Dichloroethene	ND	20	20	100	19	95.0	5.13	20	28 - 167
Methylene chloride	ND	20	20	100	19	95.0	5.13	20	25 - 162
Trans-1,2-Dichloroethene	ND	20	20	100	19	95.0	5.13	20	38 - 155
1,1-Dichloroethane	ND	20	20	100	19	95.0	5.13	20	47 - 132
Chloroform	ND	20	20	100	19	95.0	5.13	20	49 - 133
1,1,1-Trichloroethane	ND	20	20	100	20	100	0	20	41 - 138
Carbon tetrachloride	ND	20	20	100	20	100	0	20	43 - 143
1,2-Dichloroethane	ND	20	19	95.0	18	90.0	5.41	20	51 - 147
2-Chloroethylvinyl ether	ND	20	18	90.0	18	90.0	0	20	14 - 186
Trichloroethene	ND	20	22	110	21	105	4.65	20	35 - 146
1,2-Dichloropropane	ND	20	19	95.0	19	95.0	0	20	44 - 156
Bromodichloromethane	ND	20	19	95.0	19	95.0	0	20	42 - 172
cis-1,3-Dichloropropene	ND	20	19	95.0	19	95.0	0	20	22 - 178
trans-1,3-Dichloropropene	ND	20	19	95.0	19	95.0	0	20	33 - 178
1,1,2-Trichloroethane	ND	20	20	100	19	95.0	5.13	20	39 - 136
Tetrachloroethene	1	20	22	105	21	100	4.88	20	26 - 162
Dibromochloromethane	ND	20	19	95.0	18	90.0	5.41	20	24 - 191
Chlorobenzene	ND	20	19	95.0	19	95.0	0	20	38 - 150
Bromoform	ND	20	17	85.0	17	85.0	0	20	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	17	85.0	17	85.0	0	20	8 - 184
1,3-Dichlorobenzene	ND	20	18	90.0	18	90.0	0	20	7 - 187
1,4-Dichlorobenzene	ND	20	18	90.0	17	85.0	5.71	20	42 - 143
1,2-Dichlorobenzene	ND	20	18	90.0	18	90.0	0	20	1 - 208

Analyst: JZL

Sequence Date: 05/26/95

SPL ID of sample spiked: 9505719-01A

Sample File ID: FF\_836.TX0

Method Blank File ID:

Blank Spike File ID: FF\_844.TX0

Matrix Spike File ID: FF\_947.TX0

Matrix Spike Duplicate File ID: FF\_948.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery =  $[( <1> - <2> ) / <3> ] \times 100$

LCS % Recovery =  $( <1> / <3> ) \times 100$

Relative Percent Difference =  $|( <4> - <5> | / [( <4> + <5> ) \times 0.5] \times 100$

(\*\*) = Source: 601, Table 2

(\*\*\*) = Source: SPL Temporary Limits

SAMPLES IN BATCH(SPL ID):

9505700-05A 9505776-04A 9505679-01A 9505679-02A  
9505767-03E 9505767-01E 9505714-08A 9505791-04B  
9505791-03B 9505792-01A 9505767-05E 9505767-06E  
9505791-02B 9505791-01B 9505719-01A 9505791-05B  
9505029-24A 9505029-23A

Idelis Williams, QC Officer





\*\* SPL BATCH QUALITY CONTROL REPORT \*\*

METHOD 601 \*

PAGE  
HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous

Batch Id: HP\_F950528113800

Units: µg/L

## LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Dichlorodifluoromethane	ND	20	15	75.0	1 - 200
Chloromethane	ND	20	19	95.0	1 - 193
Vinyl chloride	ND	20	18	90.0	28 - 163
Bromomethane	ND	20	20	100	1 - 144
Chloroethane	ND	20	25	125	46 - 137
Trichlorofluoromethane	ND	20	20	100	21 - 156
1,1-Dichloroethene	ND	20	13	65.0	28 - 167
Methylene chloride	1	20	22	110	25 - 162
Trans-1,2-Dichloroethene	ND	20	18	90.0	38 - 155
1,1-Dichloroethane	ND	20	20	100	34 - 132
Chloroform	ND	20	21	105	49 - 133
1,1,1-Trichloroethane	ND	20	20	100	41 - 138
Carbon tetrachloride	ND	20	21	105	43 - 143
1,2-Dichloroethane	ND	20	21	105	51 - 147
2-Chloroethylvinyl ether	ND	20	19	95.0	14 - 186
Trichloroethene	ND	20	24	120	35 - 146
1,2-Dichloropropane	ND	20	22	110	44 - 156
Bromodichloromethane	ND	20	20	100	42 - 172
cis-1,3-Dichloropropene	ND	20	21	105	22 - 178
trans-1,3-Dichloropropene	ND	20	18	90.0	33 - 178
1,1,2-Trichloroethane	ND	20	23	115	39 - 136
Tetrachloroethene	ND	20	22	110	26 - 162
Dibromochloromethane	ND	20	21	105	24 - 191
Chlorobenzene	ND	20	22	110	38 - 150
Bromoform	ND	20	20	100	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	21	105	8 - 184
1,3-Dichlorobenzene	ND	20	23	115	7 - 187
1,4-Dichlorobenzene	ND	20	23	115	42 - 143
1,2-Dichlorobenzene	ND	20	24	120	1 - 208

## MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
Dichlorodifluoromethane	ND	20	15	75.0	14	70.0	6.90	20	1 - 200

## SAMPLES IN BATCH(SPL ID):

9505858-05B 9505858-04B 9505858-03B 9505858-02B  
9505858-01B 9505923-13A 9505923-12A 9505894-11A  
9505894-08A 9505894-01A 9505894-05A 9505894-04A  
9505894-03A 9505894-06A 9505894-02A 9505894-10A  
9505894-09A 9505894-07A 9505934-01A 9505767-04E

  
Idelis Williams, QC Officer



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*  
METHOD 601 \*

PAGE

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_F950528113800

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results	Spike Added	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits (***) (Advisory)	
			Result	Recovery	Result	Recovery		RPD	Recovery Range
			<1>	<4>	<1>	<5>		Max.	
Chloromethane	ND	20	17	85.0	20	100	16.2	20	1 - 193
Vinyl chloride	ND	20	17	85.0	18	90.0	5.71	20	28 - 163
Bromomethane	ND	20	21	105	20	100	4.88	20	1 - 144
Chloroethane	ND	20	22	110	23	115	4.44	20	46 - 137
Trichlorofluoromethane	ND	20	17	85.0	19	95.0	11.1	20	21 - 156
1,1-Dichloroethene	ND	20	20	100	20	100	0	20	28 - 167
Methylene chloride	ND	20	20	100	20	100	0	20	25 - 162
Trans-1,2-Dichloroethene	ND	20	20	100	20	100	0	20	38 - 155
1,1-Dichloroethane	ND	20	20	100	20	100	0	20	47 - 132
Chloroform	ND	20	20	100	20	100	0	20	49 - 133
1,1,1-Trichloroethane	ND	20	20	100	20	100	0	20	41 - 138
Carbon tetrachloride	ND	20	20	100	20	100	0	20	43 - 143
1,2-Dichloroethane	ND	20	19	95.0	19	95.0	0	20	51 - 147
2-Chloroethylvinyl ether	ND	20	23	115	23	115	0	20	14 - 186
Trichloroethene	ND	20	21	105	21	105	0	20	35 - 146
1,2-Dichloropropane	ND	20	19	95.0	19	95.0	0	20	44 - 156
Bromodichloromethane	ND	20	19	95.0	19	95.0	0	20	42 - 172
cis-1,3-Dichloropropene	ND	20	19	95.0	19	95.0	0	20	22 - 178
trans-1,3-Dichloropropene	ND	20	19	95.0	19	95.0	0	20	33 - 178
1,1,2-Trichloroethane	ND	20	20	100	20	100	0	20	39 - 136
Tetrachloroethene	ND	20	20	100	20	100	0	20	26 - 162
Dibromochloromethane	ND	20	19	95.0	19	95.0	0	20	24 - 191
Chlorobenzene	ND	20	19	95.0	19	95.0	0	20	38 - 150
Bromoform	ND	20	18	90.0	18	90.0	0	20	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	18	90.0	18	90.0	0	20	8 - 184
1,3-Dichlorobenzene	ND	20	18	90.0	18	90.0	0	20	7 - 187
1,4-Dichlorobenzene	ND	20	18	90.0	17	85.0	5.71	20	42 - 143
1,2-Dichlorobenzene	ND	20	19	95.0	18	90.0	5.41	20	1 - 208

Analyst: JZL

Sequence Date: 05/27/95

SPL ID of sample spiked: 9505934-01A

Sample File ID: FF\_978.TX0

Method Blank File ID:

Blank Spike File ID: FF\_970.TX0

Matrix Spike File ID: FF\_974.TX0

Matrix Spike Duplicate File ID: FF\_975.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery =  $[( <1> - <2> ) / <3> ] \times 100$

LCS % Recovery =  $( <1> / <3> ) \times 100$

Relative Percent Difference =  $| ( <4> - <5> ) | / [ ( <4> + <5> ) \times 0.5 ] \times 100$

(\*\*) = Source: 601, Table 2

(\*\*\*) = Source: SPL Temporary Limits

SAMPLES IN BATCH (SPL ID):

9505858-05B 9505858-04B 9505858-03B 9505858-02B  
9505858-01B 9505923-13A 9505923-12A 9505894-11A  
9505894-08A 9505894-01A 9505894-05A 9505894-04A  
9505894-03A 9505894-06A 9505894-02A 9505894-10A  
9505894-09A 9505894-07A 9505934-01A 9505767-04E

Idelis Williams, QC Officer



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*  
METHOD 8010\*\*\*

PAGE HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_F950602120500

LABORATORY CONTROL SAMPLE

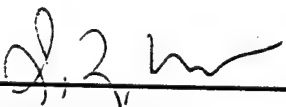
S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) ‡ Recovery Range
			Result <1>	Recovery ‡	
Dichlorodifluoromethane	ND	20	11	55.0	1 - 200
Chloromethane	ND	20	15	75.0	1 - 193
Vinyl chloride	ND	20	14	70.0	28 - 163
Bromomethane	ND	20	15	75.0	1 - 144
Chloroethane	ND	20	17	85.0	46 - 137
Trichlorofluoromethane	ND	20	17	85.0	21 - 156
1,1-Dichloroethene	ND	20	13	65.0	28 - 167
Methylene chloride	ND	20	27	135	25 - 162
Trans-1,2-Dichloroethene	ND	20	20	100	38 - 155
1,1-Dichloroethane	ND	20	22	110	47 - 132
Chloroform	ND	20	23	115	49 - 133
1,1,1-Trichloroethane	ND	20	22	110	41 - 138
Carbon tetrachloride	ND	20	22	110	43 - 143
1,2-Dichloroethane	ND	20	22	110	51 - 147
2-Chloroethylvinyl ether	ND	20	20	100	14 - 186
Trichloroethene	ND	20	25	125	35 - 146
1,2-Dichloropropane	ND	20	23	115	44 - 156
Bromodichloromethane	ND	20	22	110	42 - 172
cis-1,3-Dichloropropene	ND	20	26	130	22 - 178
trans-1,3-Dichloropropene	ND	20	23	115	33 - 178
1,1,2-Trichloroethane	ND	20	26	130	39 - 136
Tetrachloroethene	ND	20	26	130	26 - 162
Dibromochloromethane	ND	20	25	125	24 - 191
Chlorobenzene	ND	20	25	125	38 - 150
Bromoform	ND	20	24	120	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	23	115	8 - 184
1,3-Dichlorobenzene	ND	20	26	130	7 - 187
1,4-Dichlorobenzene	ND	20	26	130	42 - 143
1,2-Dichlorobenzene	ND	20	27	135	1 - 208

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative ‡ Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
Dichlorodifluoromethane	ND	20	10	50.0	11	55.0	9.52	20	1 - 200

SAMPLES IN BATCH(SPL ID):

9505960-03B 9505960-06B 9505960-05B 9506115-02A  
9506115-01A 9505960-04B 9505858-07B 9505858-06B

  
Idelis Williams, QC Officer



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*  
METHOD 8010\*\*\*

PAGE

HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_F950602120500

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results  <2>	Spike Added  <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits (***) (Advisory)	
			Result	Recovery	Result	Recovery		RPD	Recovery Range
			<1>	<4>	<1>	<5>		Max.	
Chloromethane	ND	20	16	80.0	15	75.0	6.45	20	1 - 193
Vinyl chloride	ND	20	14	70.0	15	75.0	6.90	20	28 - 163
Bromomethane	ND	20	14	70.0	16	80.0	13.3	20	1 - 144
Chloroethane	ND	20	16	80.0	17	85.0	6.06	20	46 - 137
Trichlorofluoromethane	ND	20	16	80.0	16	80.0	0	20	21 - 156
1,1-Dichloroethene	ND	20	23	115	22	110	4.44	20	28 - 167
Methylene chloride	ND	20	27	135	23	115	16.0	20	25 - 162
Trans-1,2-Dichloroethene	ND	20	26	130	26	130	0	20	38 - 155
1,1-Dichloroethane	ND	20	26	130	26	130	0	20	47 - 132
Chloroform	ND	20	25	125	26	130	3.92	20	49 - 133
1,1,1-Trichloroethane	ND	20	26	130	26	130	0	20	41 - 138
Carbon tetrachloride	ND	20	27	135	26	130	3.77	20	43 - 143
1,2-Dichloroethane	ND	20	25	125	25	125	0	20	51 - 147
2-Chloroethylvinyl ether	ND	20	19	95.0	19	95.0	0	20	14 - 186
Trichloroethene	ND	20	27	135	27	135	0	20	35 - 146
1,2-Dichloropropane	ND	20	26	130	26	130	0	20	44 - 156
Bromodichloromethane	ND	20	26	130	26	130	0	20	42 - 172
cis-1,3-Dichloropropene	ND	20	27	135	27	135	0	20	22 - 178
trans-1,3-Dichloropropene	ND	20	26	130	27	135	3.77	20	33 - 178
1,1,2-Trichloroethane	ND	20	26	130	27	135	3.77	20	39 - 136
Tetrachloroethene	ND	20	28	140	29	145	3.51	20	26 - 162
Dibromochloromethane	ND	20	26	130	27	135	3.77	20	24 - 191
Chlorobenzene	ND	20	26	130	26	130	0	20	38 - 150
Bromoform	ND	20	26	130	24	120	8.00	20	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	25	125	25	125	0	20	8 - 184
1,3-Dichlorobenzene	ND	20	25	125	25	125	0	20	7 - 187
1,4-Dichlorobenzene	ND	20	24	120	25	125	4.08	20	42 - 143
1,2-Dichlorobenzene	ND	20	25	125	25	125	0	20	1 - 208

Analyst: JZL

Sequence Date: 06/02/95

SPL ID of sample spiked: 9506115-01A

Sample File ID: FF\_122.TX0

Method Blank File ID:

Blank Spike File ID: FF\_069.TX0

Matrix Spike File ID: FF\_119.TX0

Matrix Spike Duplicate File ID: FF\_120.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery =  $[( <1> - <2> ) / <3> ] \times 100$

LCS % Recovery =  $( <1> / <3> ) \times 100$

Relative Percent Difference =  $| ( <4> - <5> ) | / [ ( <4> + <5> ) \times 0.5 ] \times 100$

(\*\*) = Source: 8010, Table 3

(\*\*\*) = Source: SPL Temporary Limits

SAMPLES IN BATCH(SPL ID):

9505960-03B 9505960-06B 9505960-05B 9506115-02A  
9506115-01A 9505960-04B 9505858-07B 9505858-06B

Idelis Williams, QC Officer



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*

METHOD 8020/602

PAGE HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous

Batch Id: HP\_J950527021600

Units: µg/L

## LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery <4>	
MTBE	ND	50	46	92.0	56 - 135
Benzene	ND	50	44	88.0	61 - 123
Toluene	ND	50	44	88.0	62 - 122
EthylBenzene	ND	50	46	92.0	56 - 119
O Xylene	ND	50	46	92.0	32 - 160
M & P Xylene	ND	100	100	100	32 - 160

## MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
MTBE	ND	20	21	105	21	105	0	20	39 - 150
Benzene	ND	20	21	105	22	110	4.65	33	39 - 150
Toluene	ND	20	20	100	20	100	0	35	56 - 134
EthylBenzene	ND	20	19	95.0	20	100	5.13	40	61 - 128
O Xylene	ND	20	19	95.0	19	95.0	0	29	40 - 130
M & P Xylene	ND	40	37	92.5	39	97.5	5.26	20	43 - 152

Analyst: YN

Sequence Date: 05/27/95

SPL ID of sample spiked: 9505887-04A

Sample File ID: J\_\_347.TX0

Method Blank File ID:

Blank Spike File ID: J\_\_341.TX0

Matrix Spike File ID: J\_\_368.TX0

Matrix Spike Duplicate File ID: J\_\_369.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery =  $[( <1> - <2> ) / <3> ] \times 100$ LCS % Recovery =  $( <1> / <3> ) \times 100$ Relative Percent Difference =  $| ( <4> - <5> ) | / [ ( <4> + <5> ) \times 0.5 ] \times 100$ 

(\*\*) = Source: SPL-Houston Historical Data

(\*\*\* ) = Source: SPL-Houston Historical Data

## SAMPLES IN BATCH(SPL ID):

9505858-07A	9505858-06A	9505858-08A	9505826-03A
9505767-01D	9505776-04B	9505812-01A	9505858-09A
9505887-03A	9505887-02A	9505887-01A	9505858-04A
9505858-03A	9505858-02A	9505858-01A	9505801-07A
9505887-04A	9505767-04D	9505826-05A	

  
Idelis Williams, QC Officer



**\*\* SPL BATCH QUALITY CONTROL REPORT \*\***  
METHOD 8020/602

PAGE **HOUSTON LABORATORY**  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_J950527174300

**LABORATORY CONTROL SAMPLE**

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery &	
MTBE	ND	50	43	86.0	56 - 135
Benzene	ND	50	42	84.0	61 - 123
Toluene	ND	50	42	84.0	62 - 122
EthylBenzene	ND	50	44	88.0	56 - 119
O Xylene	ND	50	45	90.0	32 - 160
M & P Xylene	ND	100	97	97.0	32 - 160

**MATRIX SPIKES**

S P I K E C O M P O U N D S	Sample Results  <2>	Spike Added  <3>	Matrix Spike		Matrix Spike		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result  <1>	Recovery  <4>	Duplicate			RPD Max.	Recovery Range
					Result  <1>	Recovery  <5>			
MTBE	ND	20	21	105	21	105	0	20	39 - 150
Benzene	ND	20	22	110	22	110	0	33	39 - 150
Toluene	ND	20	21	105	20	100	4.88	35	56 - 134
EthylBenzene	ND	20	20	100	20	100	0	40	61 - 128
O Xylene	ND	20	19	95.0	19	95.0	0	29	40 - 130
M & P Xylene	ND	40	40	100	39	97.5	2.53	20	43 - 152

Analyst: YN

Sequence Date: 05/27/95

SPL ID of sample spiked: 9505858-05A

Sample File ID: J\_\_383.TX0

Method Blank File ID:

Blank Spike File ID: J\_\_370.TX0

Matrix Spike File ID: J\_\_373.TX0

Matrix Spike Duplicate File ID: J\_\_374.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery =  $[( <1> - <2> ) / <3> ] \times 100$

LCS % Recovery =  $( <1> / <3> ) \times 100$

Relative Percent Difference =  $| ( <4> - <5> ) / [ ( <4> + <5> ) \times 0.5 ] \times 100$

(\*\*) = Source: SPL-Houston Historical Data

(\*\*\*) = Source: SPL-Houston Historical Data

**SAMPLES IN BATCH(SPL ID):**

9505778-01A 9505768-03A 9505767-06D 9505826-01A  
9505767-03D 9505778-03A 9505899-02A 9505858-10A  
9505700-05B 9505772-02A 9505858-05A 9505826-04A  
9505800-05A 9505715-05A

Idelis Williams, QC Officer



\*\* SPL BATCH QUALITY CONTROL REPORT \*\*  
METHOD 602/8020

PAGE HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Matrix: Aqueous  
Units: ug/L

Batch Id: HP\_J950528080300

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result	Recovery	
			<1>	%	
MTBE	ND	50	37	74.0	56 - 135
Benzene	ND	50	37	74.0	61 - 123
Toluene	ND	50	39	78.0	62 - 122
EthylBenzene	ND	50	42	84.0	56 - 119
O Xylene	ND	50	44	88.0	32 - 160
M & P Xylene	ND	100	94	94.0	32 - 160

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result	Recovery	Result	Recovery		RPD	Recovery Range
			<1>	<4>	<1>	<5>		Max.	
MTBE	75	20	100	125	100	125	0	20	39 - 150
Benzene	ND	20	23	115	23	115	0	25	39 - 150
Toluene	ND	20	21	105	21	105	0	26	56 - 134
EthylBenzene	ND	20	21	105	21	105	0	38	61 - 128
O Xylene	ND	20	21	105	20	100	4.88	29	40 - 130
M & P Xylene	ND	40	43	108	42	105	2.82	20	43 - 152

Analyst: YN

Sequence Date: 05/28/95

SPL ID of sample spiked: 9505884-03A

Sample File ID: J\_403.TX0

Method Blank File ID:

Blank Spike File ID: J\_399.TX0

Matrix Spike File ID: J\_424.TX0

Matrix Spike Duplicate File ID: J\_425.TX0

\* = Values Outside QC Range

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery =  $[( <1> - <2> ) / <3> ] \times 100$

LCS % Recovery =  $( <1> / <3> ) \times 100$

Relative Percent Difference =  $| ( <4> - <5> ) | / [ ( <4> + <5> ) \times 0.5 ] \times 100$

(\*\*) = Source: SPL-Houston Historical Data

(\*\*\*) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9505844-07A 9505844-09A 9505844-04A 9505844-02A  
9505844-06A 9505844-01A 9505715-08A 9505826-02A  
9505899-03A 9505800-04A 9505800-01A 9505690-03B  
9505690-01B 9505767-05D 9505777-02A 9505777-01A  
9505772-01A 9505884-03A 9505800-06A

  
Idelis Williams, QC Officer



# ICP Spectroscopy Method 6010 Quality Control Report



Matrix: Water

Units: mg/L

Analyst: DQ

Date: 060595 Time: 1010 File Name: 060595DQ

Checked: *J. Marro*

## Laboratory Control Sample

Element	Mth. Blank	True Value	Result	% Recovery	Lower Limit	Upper Limit
Silver						
Aluminum						
Arsenic						
Barium						
Beryllium						
Calcium						
Cadmium	ND	2.00	1.934	97	1.60	2.40
Cobalt						
Chromium						
Copper	ND	2.00	2.042	102	1.60	2.40
Iron						
Potassium						
Magnesium						
Manganese						
Sodium						
Nickel	ND	2.00	1.938	97	1.60	2.40
Lead						
Antimony						
Selenium						
Thallium						
Vanadium						
Zinc						

## Work Orders in Batch

Work Order	Fractions
95-05-767	01C-03C
	05C, 06C
95-05-842	01A, 02A

## Matrix Spike - Spike Duplicate Results

Work Order Spiked: 95-05-767 01C

Element	Sample Result	Spike Added	Matrix Spike Result	Matrix Spike Recovery	Matrix Spike Duplicate Result	Matrix Spike Duplicate Recovery	QC Limits % Recovery		Spike RPD %	QC Limits %
Silver										
Aluminum										
Arsenic										
Barium										
Beryllium										
Calcium										
Cadmium	ND	1.0	0.9464	95	0.9686	97	80	120	2.3	20.0
Cobalt										
Chromium										
Copper	ND	1.0	1.008	101	1.021	102	80	120	1.3	20.0
Iron										
Potassium										
Magnesium										
Manganese										
Sodium										
Nickel	ND	1.0	0.9588	96	0.9798	98	80	120	2.2	20.0
Lead										
Antimony										
Selenium										
Thallium										
Vanadium										
Zinc										

*Idetis Williams* 6/6/95  
Idetis Williams, QC Officer



## SPL QUALITY CONTROL SUMMARY

Rev. 4/94

## Atomic Absorption Analysis

## Elements

2

**Test Code:**

Page

## Method:

12020

**Instrument:**

U

**Date:**

5/1/95

**Time:**

0714

File #:

05/17/74

## Analysis

WFC

**Matrix:**

1105

**LIBRA**

Leachate: ☐ Water☐ Water

**Output**

Units

29/12

Sample #'s in Batch

Sample #'s in Batch			
05767-1c-3c	5c, 6c		
05404-1c			
05903-1c			
05906-1c			
05907-1c			

Blank and Check Standard				Matrix Spike and Spike Duplicate Data						
Sample ID	Method	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec.	% RPD
05904-1e	MB	50.0	96.8%	MB	50.0	48.2	51.4	96.4%	102.8%	6
LCS 5/30	MB	50.0	106.4%	NA	50.0	—	—	—	—	—

• FILAGS •

- = Values Outside QC Range

MS or MSD out of QA/QC Limits (% Rec. 75-125)

## Analysis

Walter Fawcett

Date \_\_\_\_\_

Date 5/31/95

Date \_\_\_\_\_

Date 5/31/95

**Approved By**

Charles

5/21/95



SPL QUALITY CONTROL SUMMARY

Atomic Absorption Analysis

Rev 494

Element: CR Date: 6/1/95 Analyst: WFC Units: ug/L  
Test Code: CRQG Time: 09:29 Matrix: Soil ☒ Water ☐ Soil  
Method: P3020 File #: 06014 Leachate: ☐ Water ☐ Soil  
Instrument: A ☐ Oil ☐ Other

Sample #'s in Batch

05767-1c-	305c, 6c								
05694-1E-	3E								

Blank and Check Standard				Matrix Spike and Spike Duplicate Data					
Sample ID	Method	LCS Conc. Theoretical	LCS % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec.
* 05709-1c- MB	MB	20.0	96.5%	MB	20.0	19.4	21.1	97.0%	105.5%
LCS MB	MB	20.0	95.0%	MB	20.0				

• FLAGS: ☐ = Values Outside QC Range  
☐ MS or MSD out of QA/QC Limits (% Rec. 75-125)  
☐ RPD out of QA/QC Limits (20 %)  
☒ Soil LCS % Rec. Range         
       Example used for QA/QC only

Analyst: Wallingford Date: 6/1/95  
Approved By: WFC Date: 6/1/95  
Data: 6/1/95



# SPL QUALITY CONTROL SUMMARY

Rev. 4/91

## Atomic Absorption Analysis

Element: Hg Date: 6/6/95 Analyst: STB Units: mg/L  
Test Code: HgALC Time: 12:15 Matrix: Soil ☒ Water ☐ Soil  
Method: 74-11 File #: 66064 Leachate: ☐ Water ☐ Soil  
Instrument: SCS-2B ☐ Oil ☐ Other

Sample #'s in Batch

Q5767-1C-1C	Q5767-1C-1C	Q5767-1C-1C	Q5767-1C-1C	Q5767-1C-1C	Q5767-1C-1C	Q5767-1C-1C	Q5767-1C-1C	Q5767-1C-1C	Q5767-1C-1C

Blank and Check Standard				Matrix Spike and Spike Duplicate Data						
Sample ID	Method Blank	I.C.S. Conc. Theoretical	I.C.S. % Recovery	Sample Conc.	Spike Added	Spike Conc.	Spike Dup. Conc.	Spike % Rec.	Spike Dup. % Rec.	% RPD
Q5767-1C	#1 ND	2.00	100.5	ND	2.00	1.96	2.01	98.0	100.5	3
	#2 ND	1.00	100.5	ND	1.00	1.04	1.07	97.0	98.5	2

• FLAGS •

- ☐ = Values Outside QC Range
- ☐ MS or MSD out of QA/QC Limits (% Rec. 75-125)
- ☐ RPD out of QA/QC Limits (20 %)
- ☐ Soil LCS % Rec. Range
- ☐ Sample used for QA/QC only
- ☐ See Case Narrative

Analyst: STB Date: 6/6/95  
Approved By: Jean M. Williams Date: 6/6/95  
Idellis Williams, QC Officer Date: 6/6/95

\*\*\*\*\* CALIBRATION CURVE % RSD \*\*\*\*\*

Sample Name	File Name	MTBE Custom Expression	Isoprppylether Custom Expression	Benzene Custom Expression	Toluene Custom Expression	Ethyl_Benzene Custom Expression
5	U_519.rs	18.0289	10.4000	4.5821	4.9126	6.8103
10	U_520.rs	19.7254	10.8768	5.0774	5.3416	7.8577
5	U_521.rs	19.8032	11.2039	5.0189	5.4857	7.7313
5	U_522.rs	19.9495	11.2395	5.0310	5.5026	7.7783
100	U_523.rs	20.8888	11.3814	5.0394	5.2651	7.3053
200	U_524.rs	22.7563	11.1905	5.1646	5.4669	7.2915
100	U_525.rs	24.4992	11.1162	5.1067	5.4140	7.3559
100	U_526.rs	25.2171	10.8977	5.1210	5.4138	7.3483
Averages		21.3585	11.0382	5.0176	5.3503	7.4348
SD		11.88	2.80	3.65	3.62	4.62

Sample Name	File Name	m and p Xylene Custom Expression	o-Xylene Custom Expression
5	U_519.rs	2.8057	9.5703
10	U_520.rs	3.1543	7.9416
5	U_521.rs	3.0846	7.6730
100	U_522.rs	3.0099	7.2908
100	U_523.rs	2.9159	6.9053
100	U_524.rs	2.9837	6.9654
100	U_525.rs	2.9345	6.7683
100	U_526.rs	2.8729	6.3207
Averages		2.9702	7.4294
SD		3.81	13.54

File Created Successfully - Stored in: l:\data\tchrom\btex\hp\_p\601SUMM.prn

*Handwritten signature*  
5/19/95

Sample File : L:\DATA\TCHROM\BTEX\METHODS\US051995.SMP  
 Created by : on : 04/12/90 13:41  
 Edited by : on : 05/19/95 14:26  
 Number Of Times Edited : 157

Sample Description :  
 Default Injection Volume = 2.0000 ul  
 An Internal Standard Calibration Will Be Used  
 Unknown Peaks Will Be Quantitated Using A Response Factor of 1000000.000000

Component Information :

MTBE

Retention Time : 2.086 min Search Window: 5.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : TFT  
 Group Name : MTBE  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
1	5.0000	2773.33	370.70	0.02570	0.05000	1
2	10.0000	5069.62	668.20	0.04698	0.10000	1
3	25.0000	12624.23	1669.24	0.11699	0.25000	1
4	50.0000	25063.34	3327.10	0.23226	0.50000	1
5	100.0000	47872.52	6402.23	0.44363	1.00000	1
6	200.0000	87887.83	11750.19	0.81444	2.00000	1
7	400.0000	163270.67	21764.61	1.51300	4.00000	1
8	500.0000	198277.84	25991.61	1.83741	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.376965)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.996228

Isopropylether

Retention Time : 2.379 min Search Window: 5.00 sec, 5.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : TFT  
 Group Name :  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
1	5.0000	4807.69	586.68	0.04455	0.05000	1
2	10.0000	9193.91	1077.43	0.08520	0.10000	1
3	25.0000	22313.77	2702.76	0.20678	0.25000	1
4	50.0000	44486.16	5453.70	0.41225	0.50000	1
5	100.0000	87862.48	10967.03	0.81421	1.00000	1
6	200.0000	178723.16	21316.41	1.65620	2.00000	1
7	400.0000	359836.41	41647.52	3.33454	4.00000	1
8	500.0000	458811.16	52302.23	4.25172	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.841704)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.999753

Benzene

Retention Time : 3.927 min Search Window: 5.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : TFT  
 Group Name : BENZENE  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
1	5.0000	10912.13	1460.94	0.10112	0.05000	1
2	10.0000	19695.06	2639.92	0.18251	0.10000	1
3	25.0000	49811.77	6531.47	0.46160	0.25000	1
4	50.0000	99382.95	13015.51	0.92097	0.50000	1
5	100.0000	198437.84	25850.88	1.83889	1.00000	1
6	200.0000	387253.19	49637.88	3.58861	2.00000	1
7	400.0000	783281.75	97171.72	7.25854	4.00000	1

Calibration Curve :  $y = (0.000000) + (1.810877)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.999969

1,4-DIFLUOROBENZENE

Retention Time : 4.323 min Search Window: 5.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : TFT  
 Group Name : 1,4-DIFLUOROBENZENE  
 Calibrating Area Ratio versus Amount Ratio Using a Pt. to Pt. Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
4	100.0000	50153.30	6162.71	0.46476	1.00000	1

TFT

Retention Time : 4.882 min Search Window: 5.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : TFT  
 Group Name : INTERNAL STANDARD  
 Calibrating Area Ratio versus Amount Ratio Using a Pt. to Pt. Fit  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
4	100.0000	107911.78	10777.63	1.00000	1.00000	1

Toluene

Retention Time : 6.994 min Search Window: 5.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : TFT  
 Group Name : TOLUENE  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
1	5.0000	10178.00	1045.15	0.09432	0.05000	1
2	10.0000	18721.00	1839.81	0.17348	0.10000	1
3	25.0000	45573.00	4565.37	0.42232	0.25000	1
4	50.0000	90866.00	9302.96	0.84204	0.50000	1
5	100.0000	189928.50	19382.90	1.76004	1.00000	1
6	200.0000	365841.00	38097.71	3.39019	2.00000	1
7	400.0000	738827.00	75079.17	6.84658	4.00000	1
8	500.0000	923563.00	92905.38	8.55850	5.00000	1

Calibration Curve :  $y = (0.000000) + (1.711126)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.999950

Ethyl Benzene

Retention Time : 11.020 min Search Window: 5.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : TFT  
 Group Name : Ethyl Benzene  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
1	5.0000	7341.84	628.64	0.06804	0.05000	1
2	10.0000	12726.43	1102.67	0.11793	0.10000	1
3	25.0000	32336.02	2815.16	0.29965	0.25000	1
4	50.0000	64281.64	5822.13	0.59569	0.50000	1
5	100.0000	136886.16	12415.47	1.26850	1.00000	1
6	200.0000	274292.25	24917.12	2.54182	2.00000	1
7	400.0000	543784.06	49850.36	5.03915	4.00000	1
8	500.0000	680428.63	61499.64	6.30542	5.00000	1

Calibration Curve :  $y = (0.000000) + (1.261172)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.999951

m and p Xylene

Retention Time : 11.330 min Search Window: 5.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : TFT  
Group Name : meta and para Xylene  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
1	10.0000	17820.66	855.44	0.16514	0.10000	1
2	20.0000	31702.59	1509.92	0.29378	0.20000	1
3	50.0000	81048.97	4047.73	0.75107	0.50000	1
4	100.0000	166120.88	9055.90	1.53941	1.00000	1
5	200.0000	342944.81	21279.56	3.17801	2.00000	1
6	400.0000	670307.75	46437.69	6.21163	4.00000	1
7	800.0000	1363092.00	100938.92	12.63154	8.00000	1
8	1000.0000	1740380.25	127237.54	16.12781	10.00000	1

Calibration Curve :  $y = (0.000000) + (1.594836)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.999685

o-Xylene

Retention Time : 12.972 min Search Window: 5.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : TFT  
Group Name : ortho-Xylene  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
1	5.0000	5224.50	275.83	0.04842	0.05000	1
2	10.0000	12592.00	565.86	0.11669	0.10000	1
3	25.0000	32582.00	1496.39	0.30193	0.25000	1
4	50.0000	68579.99	3345.66	0.63552	0.50000	1
5	100.0000	144816.91	7816.90	1.34199	1.00000	1
6	200.0000	287132.50	17161.16	2.66081	2.00000	1
7	400.0000	590991.75	37492.55	5.47662	4.00000	1
8	500.0000	791052.00	48355.70	7.33054	5.00000	1

Calibration Curve :  $y = (0.000000) + (1.416733)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.997327

4-BROMOFLUOROBENZENE

Retention Time : 14.251 min Search Window: 5.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : TFT  
Group Name : 4-BROMOFLUOROBENZENE  
Calibrating Area Ratio versus Amount Ratio Using a Pt. to Pt. Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
4	100.0000	68506.00	14895.56	0.63483	1.00000	1



Software Version: 3.2 <16C20>

Sample Name : 5  
Sample Number: TC ;S;1  
Detector : RR

Time : 5/19/95 13:27  
Study : BTEXS6;1;PQL

Instrument : HP\_U  
Autosampler : NONE  
Vial : 0/0  
Channel : A A/D mV Range : 1000

Interface Serial # : 4153271317 Data Acquisition Time: 5/19/95 10:52  
Delay Time : 0.00 min.  
Acquire Time : 21.57 min.  
Sampling Rate : 1.0000 pts/sec

Raw Data File : l:\data\tchrom\btex\hp\_u\U\_\_519.raw  
Result File : l:\data\tchrom\btex\hp\_u\U\_\_519.rst  
Sample File: L:\DATA\TCHROM\BTEX\METHODS\BTEXU.ins  
Class File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\US051995.smp  
Sequence File : l:\data\tchrom\btex\methods\btexu.seq

Injection Volume : 2 ul  
Sample Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

### BTEX Area Percent Report

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/L	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	1.179	1130.50	62.13	BB	1.0000e6	-----	0.0002		0.0002	0.0000
2	2.086	2773.33	370.70	BV	83.3552	0.0263	6.6542	MTBE	6.6542	0.0004
3	2.379	4807.69	586.68	VB	463.6803	0.0456	2.0737	Isopropylether	2.0737	0.0002
4	3.927	10912.13	1460.94	BV	1153.4324	0.1035	1.8921	Benzene	1.8921	0.0004
5	4.323	45300.44	5861.60	VV	409.1173	0.4295	22.1455	1,4-DIFLUOROBENZENE	22.1455	-0.0005
6	4.882	105478.44	10337.82	VB	-----	1.0000	0.0000	TFT	0.0000	0.0002
7	6.994	10178.00	1045.15	BB	1075.9833	0.0965	1.8919	Toluene	1.8919	0.0001
8	11.020	7341.84	628.64	BV	778.7115	0.0696	1.8856	Ethyl_Benzene	1.8856	0.0002
9	11.330	17820.66	855.44	VB	1001.2238	0.1690	3.5598	m and p Xylene	3.5598	-0.0001
10	12.972	5224.50	275.83	BB	811.1704	0.0495	1.2881	o-Xylene	1.2881	-0.0003
11	14.251	67124.50	13737.32	BB	627.2536	0.6364	21.4027	4-BROMOFLUOROBENZENE	21.4027	0.0003
12	15.393	462.43	61.83	VV	1.0000e6	-----	0.0001		0.0001	0.0000
13	16.078	774.95	121.31	BV	1.0000e6	-----	0.0002		0.0002	0.0000
14	16.217	636.46	161.79	VV	9.9999e5	-----	0.0001		0.0001	0.0000
15	16.280	697.02	152.13	VV	1.0000e6	-----	0.0001		0.0001	0.0000
16	16.400	326.74	94.88	VV	1.0000e6	-----	0.0001		0.0001	0.0000
17	16.469	383.77	108.92	VV	1.0000e6	-----	0.0001		0.0001	0.0000
18	16.533	454.80	149.92	VV	1.0000e6	-----	0.0001		0.0001	0.0000
19	16.641	1245.82	179.84	VV	1.0000e6	-----	0.0003		0.0003	0.0000
		283074.03	36252.86				62.7948		62.7948	0.0007

Report Stored in ASCII File: l:\data\tchrom\btex\hp\_u\U\_\_519.TX0

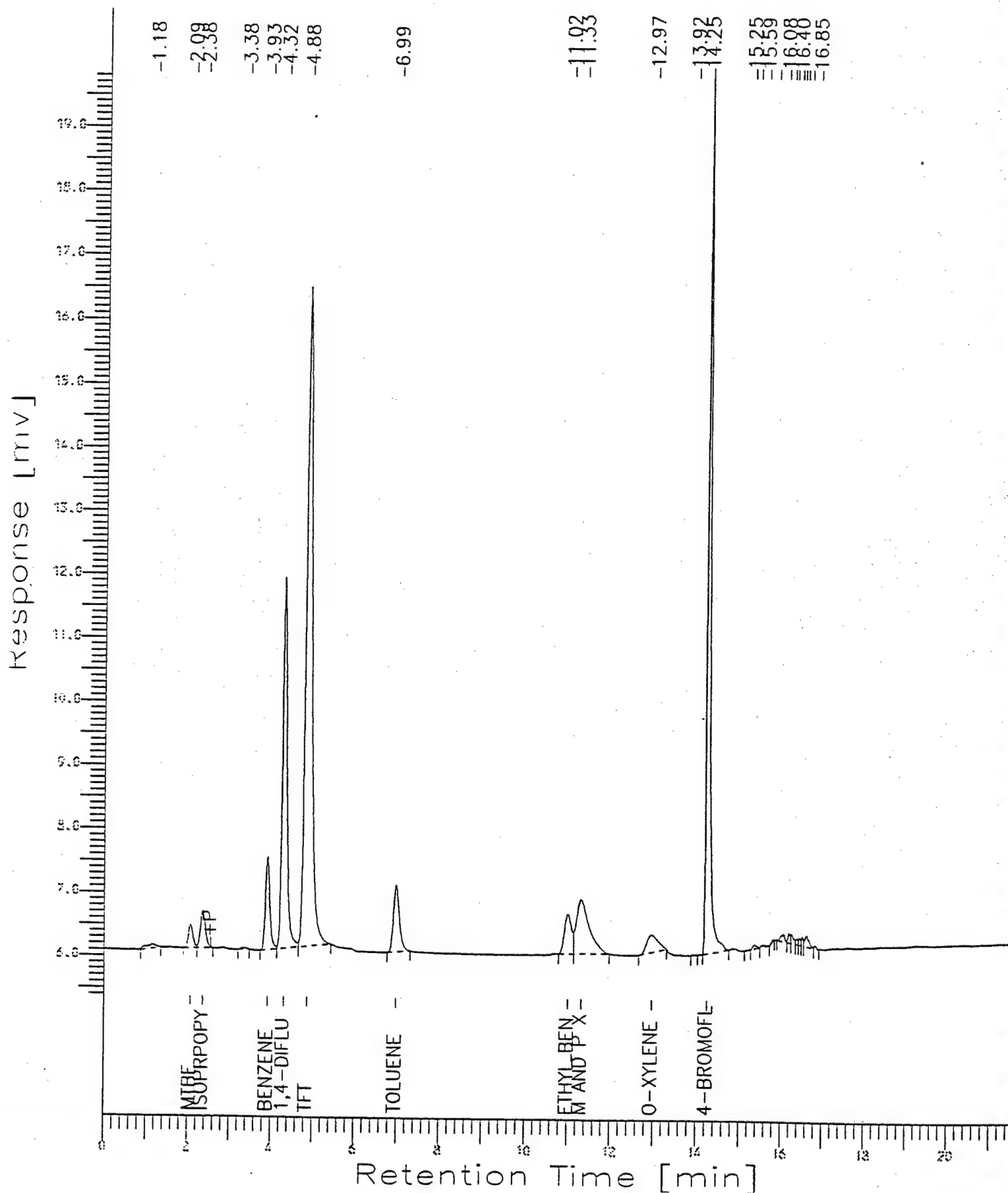


# Chromatogram

Sample Name : 5  
 File Name : l:\data\tchrom\btex\hp\_u\U\_\_519.raw  
 Method : BTEXU.ins  
 Start Time : 0.00 min  
 Scale Factor : 1

Sample #: TC ;S;1  
 Date : 5/19/95 13:27  
 Time of Injection: 5/19/95 10:52  
 Low Point : 5.39 mV  
 Plot Scale: 15 mV  
 High Point : 19.85 mV

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Software Version: 3.2 <16C20>

Sample Name : 10  
Sample Number: TC ;S;1  
Injector : RR

Time : 5/19/95 13:27  
Study : BTEXS6;1;PQL

Instrument : HP\_U  
AutoSampler : NONE  
Purge/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 4153271317 Data Acquisition Time: 5/19/95 11:19  
Delay Time : 0.00 min.  
End Time : 21.57 min.  
Sampling Rate : 1.0000 pts/sec

Raw Data File : l:\data\tchrom\btex\hp\_u\U\_\_520.raw  
Result File : l:\data\tchrom\btex\hp\_u\U\_\_520.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\BTEXU.ins  
Access File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\US051995.smp  
Sequence File : l:\data\tchrom\btex\methods\btexu.seq

Volume : 2 ul  
Sample Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

### BTEX Area Percent Report

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	1.190	1097.00	70.97	BB	1.0000e6	-----	0.0001		0.0001	0.0000
2	2.087	5069.62	668.20	BV	81.6440	0.0491	6.2094	MTBE	6.2094	0.0007
3	2.378	9193.91	1077.43	VV	454.1611	0.0890	2.0244	Isoprpopylether	2.0244	-0.0008
6	3.930	19695.06	2639.92	BV	1129.7528	0.1906	1.7433	Benzene	1.7433	0.0034
7	4.326	43919.44	5707.85	VB	400.7182	0.4251	10.9602	1,4-DIFLUOROBENZENE	10.9602	0.0027
8	4.885	103313.00	10011.95	BB	-----	1.0000	0.0000	TFT	0.0000	0.0033
9	6.999	18721.00	1839.81	BB	1053.8936	0.1812	1.7764	Toluene	1.7764	0.0046
10	11.029	12726.43	1102.67	BV	762.7248	0.1232	1.6686	Ethyl_Benzene	1.6686	0.0090
1	11.334	31702.59	1509.92	VB	980.6691	0.3069	3.2328	m and p Xylene	3.2328	0.0036
2	12.972	12592.00	565.86	BB	794.5173	0.1219	1.5849	o-Xylene	1.5849	0.0004
3	14.253	65252.50	13302.43	BB	614.3763	0.6316	10.6209	4-BROMOFLUOROBENZENE	10.6209	0.0018
6	16.083	930.00	72.67	BB	1.0000e6	-----	0.0001		0.0001	0.0000
9	16.649	404.00	83.80	BB	1.0000e6	-----	0.0000		0.0000	0.0000
		324616.56	38653.47				39.8210		39.8210	0.0287

Stored in ASCII File: l:\data\tchrom\btex\hp\_u\U\_\_520.TX0

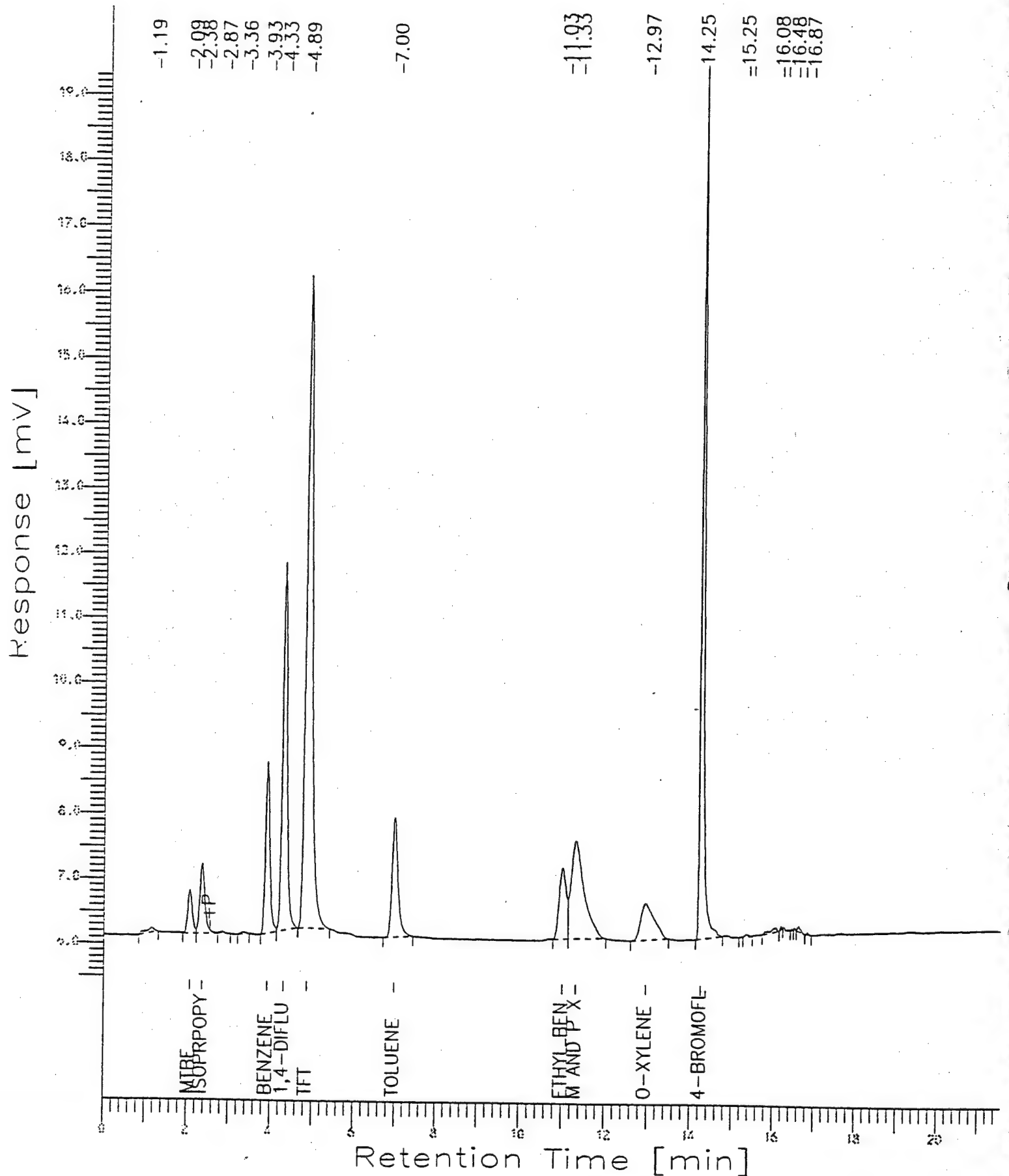
# Chromatogram

Sample Name : 10  
 FileName : l:\data\tchrom\btex\hp\_u\U\_520.raw  
 Method : BTEXU.ins  
 Start Time : 0.00 min  
 Scale Factor : 1

End Time : 21.57 min  
 Plot Offset: 5 mV

Sample #: TC ;S;1  
 Date : 5/19/95 13:27  
 Time of Injection: 5/19/95 11:19  
 Low Point : 5.44 mV  
 Plot Scale: 14 mV  
 High Point : 19.39 mV

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Software Version: 3.2 <16C20>

Sample Name : 25  
Sample Number: TC ;S;1  
Detector : RR

Time : 5/19/95 13:27  
Study : BTEXS6;1;PQL

Instrument : HP\_U  
AutoSampler : NONE  
Rins/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 4153271317 Data Acquisition Time: 5/19/95 11:47  
Delay Time : 0.00 min.  
End Time : 21.57 min.  
Sampling Rate : 1.0000 pts/sec

Raw Data File : l:\data\tchrom\btex\hp\_u\U\_\_521.raw  
Result File : l:\data\tchrom\btex\hp\_u\U\_\_521.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\BTEXU.ins  
Mass File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\US051995.smp  
Sequence File : l:\data\tchrom\btex\methods\btexu.seq

Volume : 2 ul  
Sample Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

### BTEX Area Percent Report

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	1.192	1980.00	170.95	BB	1.0000e6	-----	0.0001		0.0001	0.0000
2	2.087	12624.23	1669.24	BV	85.7494	0.1163	5.8889	MTBE	5.8889	0.0014
3	2.376	22313.77	2702.76	VB	476.9986	0.2056	1.8712	Isoprpopylether	1.8712	-0.0028
5	3.935	49811.77	6531.47	BV	1186.5625	0.4591	1.6792	Benzene	1.6792	0.0077
6	4.328	48002.16	5966.33	VV	420.8684	0.4424	4.5622	1,4-DIFLUOROBENZENE	4.5622	0.0053
7	4.885	108508.09	10442.60	VB	-----	1.0000	0.0000	TFT	0.0000	0.0033
8	7.000	45573.00	4565.37	BB	1106.8888	0.4200	1.6469	Toluene	1.6469	0.0056
9	11.028	32336.02	2815.16	BV	801.0784	0.2980	1.6146	Ethyl_Benzene	1.6146	0.0076
10	11.318	81048.97	4047.73	VB	1029.9819	0.7469	3.1476	m and p Xylene	3.1476	-0.0121
11	12.958	32582.00	1496.39	BB	834.4696	0.3003	1.5618	o-Xylene	1.5618	-0.0137
12	14.252	68003.99	14039.51	BE	645.2703	0.6267	4.2155	4-BROMOFLUOROBENZENE	4.2155	0.0012
7	16.077	395.36	54.61	VB	1.0000e6	-----	0.0000		0.0000	0.0000
11	16.632	582.18	89.93	VB	1.0000e6	-----	0.0000		0.0000	0.0000
		503761.50	54592.04				26.1880		26.1880	0.0035

Stored in ASCII File: l:\data\tchrom\btex\hp\_u\U\_\_521.TX0

# Chromatogram

Sample Name : 25

File Name : l:\data\tchrom\btex\hp\_u\U\_521.raw

Method : BTEXU.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 21.57 min

Plot Offset : 5 mV

Sample #: TC ;S;1

Date : 5/19/95 13:27

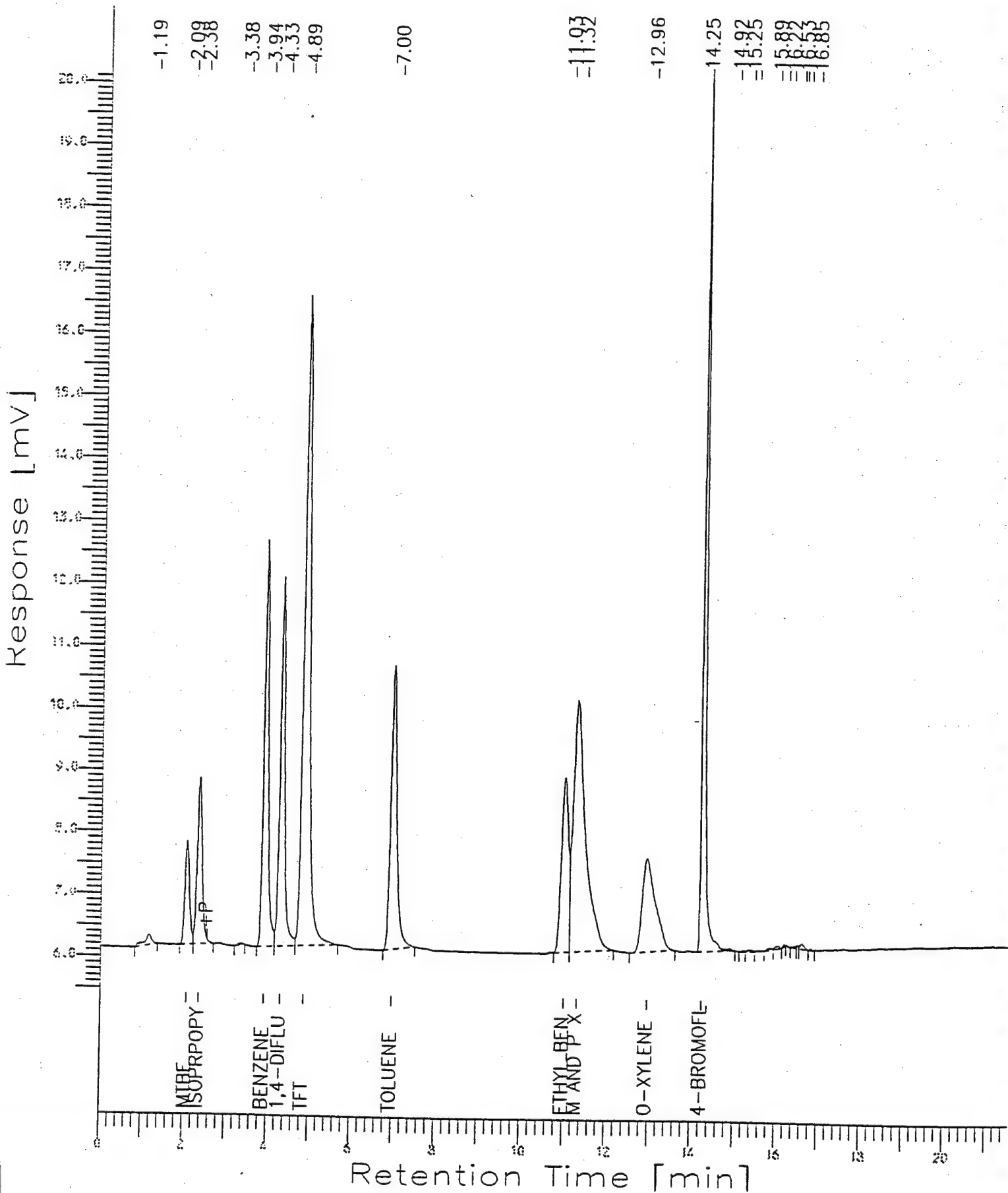
Time of Injection: 5/19/95 11:47

Low Point : 5.43 mV

Plot Scale: 15 mV

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High Point : 20.20 mV



Software Version: 3.2 <16C20>

Sample Name : 50

Sample Number: TC ;S;1

Operator : RR

Time : 5/19/95 13:27

Study : BTEXS6;1;PQL

Instrument : HP\_U

Sampler : NONE

Blank/Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 4153271317 Data Acquisition Time: 5/19/95 12:15

Delay Time : 0.00 min.

Time : 21.57 min.

Sampling Rate : 1.0000 pts/sec

Raw Data File : l:\data\tchrom\btex\hp\_u\U\_\_522.raw

Result File : l:\data\tchrom\btex\hp\_u\U\_\_522.rst

Instrument File: L:\DATA\TCHROM\BTEX\METHODS\BTEXU.ins

Mass File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.prc

Sample File : L:\DATA\TCHROM\BTEX\METHODS\US051995.smp

Sequence File : l:\data\tchrom\btex\methods\btexu.seq

Volume : 2 ul

Sample Amount : 1.0000

Area Reject : 300.00

Dilution Factor : 1.00

### BTEX Area Percent Report

Peak	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	1.192	2910.00	311.31	BB	1.0000e6	-----	0.0001		0.0001	0.0000
2	2.086	25063.34	3327.10	BV	85.2782	0.2323	5.8780	MTBE	5.8780	-0.0003
3	2.372	44486.16	5453.70	VB	474.3772	0.4123	1.8756	Isoprpopylether	1.8756	-0.0071
4	3.392	615.00	41.59	BB	9.9999e5	-----	0.0000		0.0000	0.0000
5	3.935	99382.95	13015.51	BV	1180.0416	0.9210	1.6844	Benzene	1.6844	0.0076
6	4.326	50153.30	6162.71	VV	418.5555	0.4648	2.3965	1,4-DIFLUOROBENZENE	2.3965	0.0029
7	4.879	107911.78	10777.63	VB	-----	1.0000	0.0000	TFT	0.0000	-0.0028
8	6.995	90866.00	9302.96	BB	1100.8058	0.8420	1.6509	Toluene	1.6509	0.0008
9	11.019	64281.64	5822.13	BV	796.6760	0.5957	1.6138	Ethyl_Benzene	1.6138	-0.0009
10	11.300	166120.88	9055.90	VB	1024.3217	1.5394	3.2435	m and p Xylene	3.2435	-0.0300
11	12.933	68579.99	3345.66	BE	829.8837	0.6355	1.6528	o-Xylene	1.6528	-0.0386
12	14.250	68506.00	14895.56	BB	641.7241	0.6348	2.1351	4-BROMOFLUOROBENZENE	2.1351	-0.0008
13	16.079	1000.78	72.32	VV	1.0000e6	-----	0.0000		0.0000	0.0000
14	16.215	417.27	91.20	VV	1.0000e6	-----	0.0000		0.0000	0.0000
15	16.280	426.14	84.95	VV	1.0000e6	-----	0.0000		0.0000	0.0000
16	16.533	732.27	86.51	VV	1.0000e6	-----	0.0000		0.0000	0.0000
17	16.636	795.68	98.83	VV	1.0000e6	-----	0.0000		0.0000	0.0000
		792249.19	81945.57				22.1306		22.1306	-0.0692

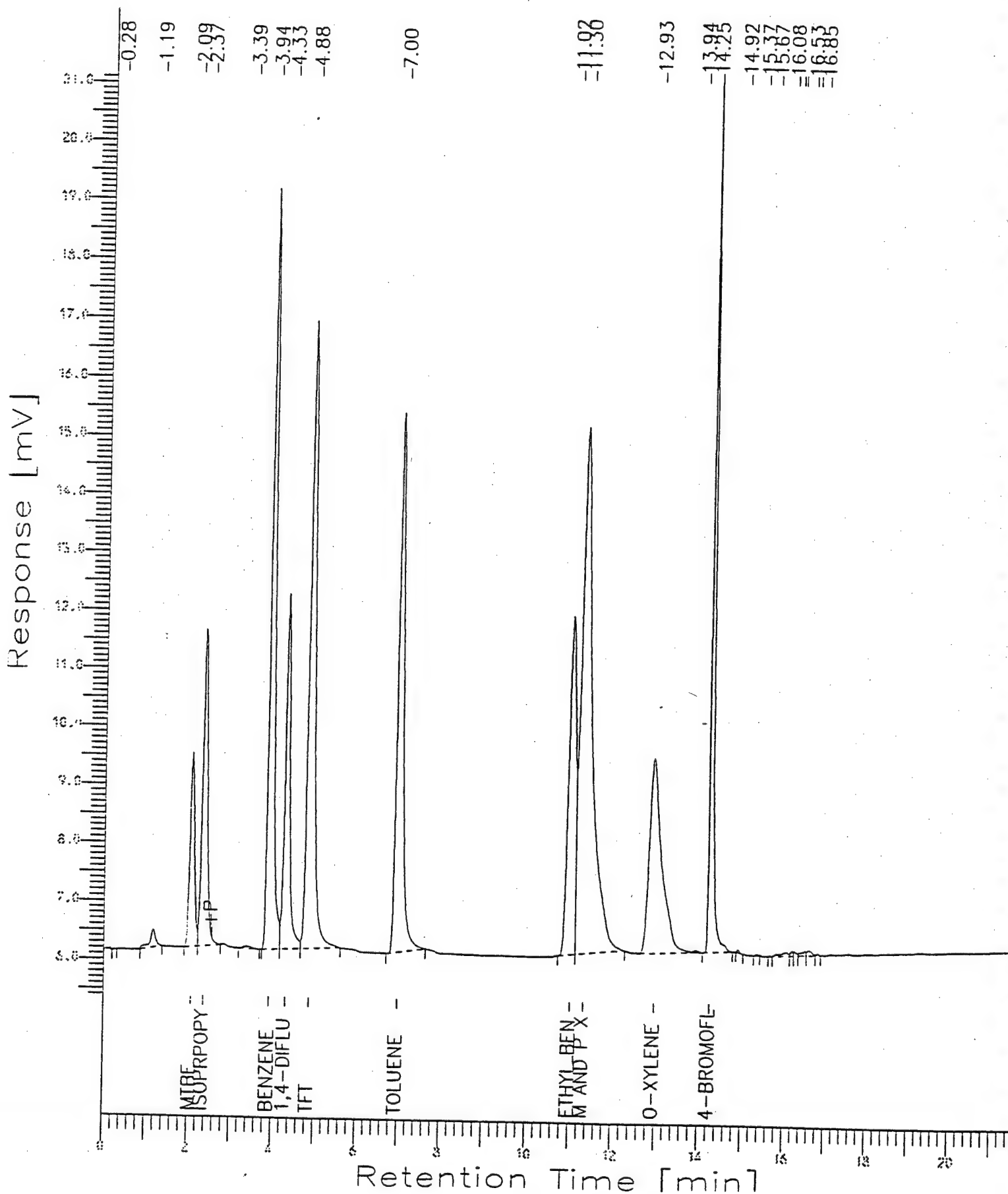
Stored in ASCII File: l:\data\tchrom\btex\hp\_u\U\_\_522.TX0

# Chromatogram

Sample Name : 50  
 FileName : l:\data\tchrom\btex\hp\_u\U\_522.raw  
 Method : BTEXU.ins  
 Start Time : 0.00 min  
 Scale Factor: 1

End Time : 21.57 min  
 Plot Offset: 5 mV

Sample #: TC ;S;1  
 Date : 5/19/95 13:27  
 Time of Injection: 5/19/95 12:15  
 Low Point : 5.40 mV  
 Plot Scale: 16 mV  
 Page 1 of 1  
 High Point : 21.18 mV



Software Version: 3.2 <16C20>

Sample Name : 100  
Sample Number: TC ;S;1  
Operator : RR

Time : 5/19/95 13:27  
Study : BTEXS6;1;PQL

Instrument : HP\_U  
Sampler : NONE  
Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 4153271317 Data Acquisition Time: 5/19/95 12:42  
Delay Time : 0.00 min.  
Inj Time : 21.57 min.  
Flowing Rate : 1.0000 pts/sec

Raw Data File : l:\data\tchrom\btex\hp\_u\U\_\_523.raw  
Result File : l:\data\tchrom\btex\hp\_u\U\_\_523.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\BTEXU.ins  
Access File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\US051995.smp  
Sequence File : l:\data\tchrom\btex\methods\btexu.seq

Volume : 2 ul  
Sample Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

### BTEX Area Percent Report

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/L	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	1.201	5694.50	670.96	BB	1.0000e6	-----	0.0001		0.0001	0.0000
2	2.091	47872.52	6402.23	BV	85.7712	0.4411	5.5814	MTBE	5.5814	0.0049
3	2.373	87862.48	10967.03	VB	477.1197	0.8095	1.8415	Isoprpyloether	1.8415	-0.0060
4	3.461	805.00	60.60	BB	1.0000e6	-----	0.0000		0.0000	0.0000
5	3.940	198437.84	25850.88	BV	1186.8634	1.8283	1.6720	Benzene	1.6720	0.0128
6	4.327	54912.55	6618.80	VV	420.9751	0.5059	1.3044	1,4-DIFLUOROBENZENE	1.3044	0.0041
7	4.876	108535.63	11451.76	VB	-----	1.0000	0.0000	TFT	0.0000	-0.0065
8	6.992	189928.50	19382.90	BB	1107.1696	1.7499	1.7154	Toluene	1.7154	-0.0018
9	11.012	136886.16	12415.47	BV	801.2817	1.2612	1.7083	Ethyl_Benzene	1.7083	-0.0084
10	11.286	342944.81	21279.56	VB	1030.2433	3.1597	3.3288	m and p Xylene	3.3288	-0.0437
11	12.916	144816.91	7816.90	BE	834.6813	1.3343	1.7350	o-Xylene	1.7350	-0.0558
12	13.935	3100.00	181.89	EV	1.0000e6	-----	0.0000		0.0000	0.0000
13	14.247	72425.71	16550.50	VE	645.4340	0.6673	1.1221	4-BROMOFLUOROBENZENE	1.1221	-0.0045
14	14.547	2266.00	202.32	EV	1.0000e6	-----	0.0000		0.0000	0.0000
15	14.913	2310.85	232.30	VE	1.0000e6	-----	0.0000		0.0000	0.0000
16	16.625	645.27	69.49	VV	1.0000e6	-----	0.0000		0.0000	0.0000
		1399444.75	140153.55				20.0091		20.0091	-0.1049

Stored in ASCII File: l:\data\tchrom\btex\hp\_u\U\_\_523.TX0



# Chromatogram

Sample Name : 100

FileName : l:\data\tchrom\btex\hp\_u\U\_523.raw

Method : BTEXU.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 21.57 min

Plot Offset: 5 mV

Sample #: TC ;S;1

Date : 5/19/95 13:27

Time of Injection: 5/19/95 12:42

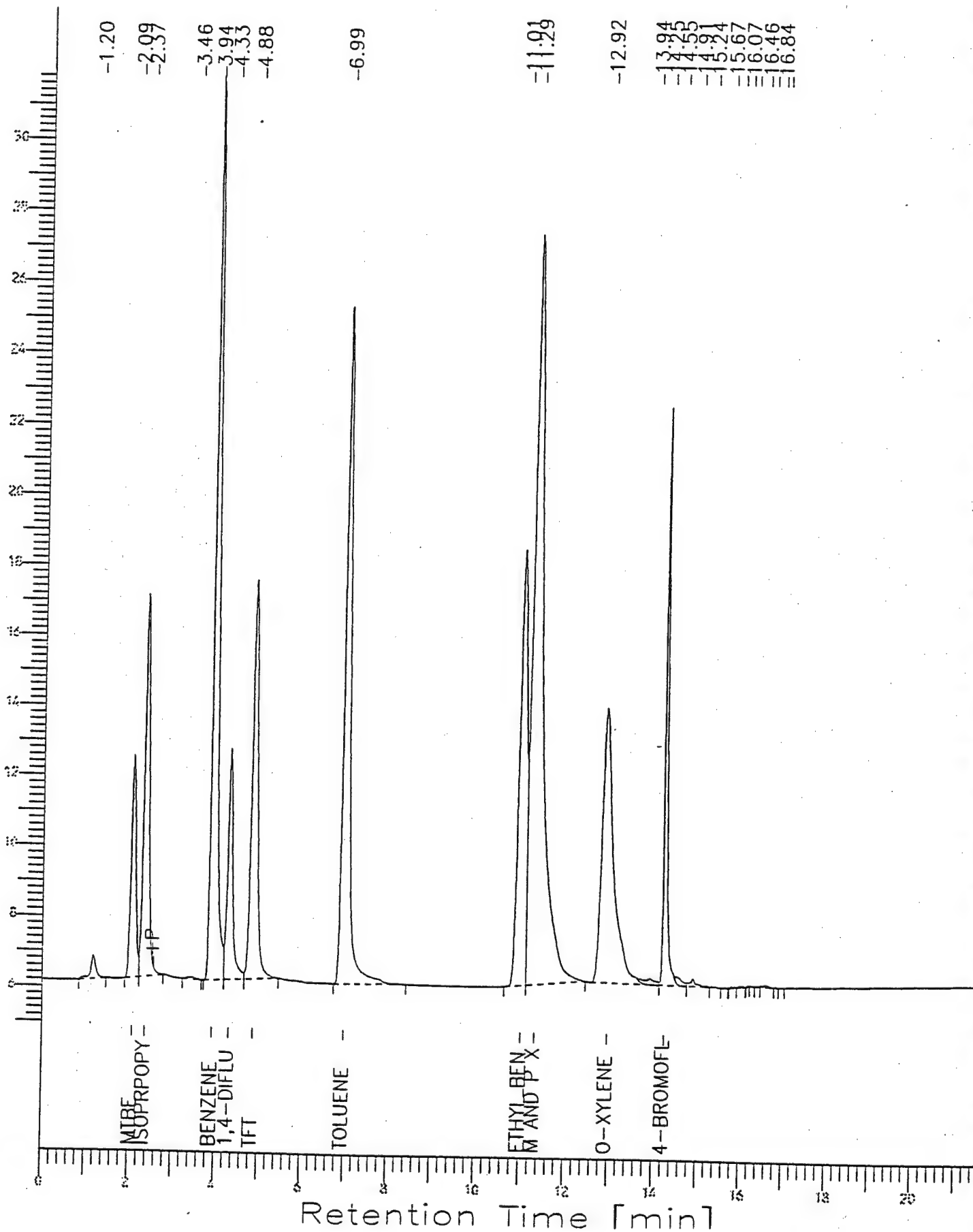
Low Point : 4.89 mV

Plot Scale: 27 mV

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High Point : 31.86 mV

Response [mV]



ftware Version: 3.2 <16C20>  
Sample Name : 200 Time : 05/19/95 13:32  
Sample Number: TC ;S;1 Study : BTEXS6;1;PQL  
Injection : RR  
Instrument : HP\_U Channel : A A/D mV Range : 1000  
Autosampler : NONE  
Backflush : 0/0

Interface Serial # : 4153271317 Data Acquisition Time: 05/19/95 13:10  
Delay Time : 0.00 min.  
Inlet Time : 21.57 min.  
Sampling Rate : 1.0000 pts/sec

Data File : L:\data\tchrom\btex\hp\_u\U\_\_524.raw  
Result File : L:\data\tchrom\btex\hp\_u\U\_\_524.rst  
Injection File: L:\DATA\TCHROM\BTEX\METHODS\BTEXU.ins  
Injection File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\US051995.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.seq

Injection Volume : 2 ul Area Reject : 300.00  
Injection Amount : 1.0000 Dilution Factor : 1.00

### BTEX Area Percent Report

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	1.210	12218.00	1452.54	BB	1.0000e6	-----	0.0001		0.0001	0.0000
2	2.095	87887.83	11750.19	BV	87.0534	0.7978	5.0479	MTBE	5.0479	0.0087
3	2.369	178723.16	21316.41	VE	484.2525	1.6224	1.8454	Isoprpopylether	1.8454	-0.0097
4	3.463	1943.00	123.90	EB	1.0000e6	-----	0.0000		0.0000	0.0000
5	3.944	387253.19	49637.88	BV	1204.6069	3.5154	1.6074	Benzene	1.6074	0.0174
6	4.325	64975.61	7103.27	VV	427.2687	0.5898	0.7604	1,4-DIFLUOROBENZENE	0.7604	0.0021
7	4.871	110158.22	11783.89	VB	-----	1.0000	0.0000	TFT	0.0000	-0.0113
8	6.990	365841.00	38097.71	BB	1123.7216	3.3211	1.6278	Toluene	1.6278	-0.0043
9	11.009	274292.25	24917.12	BV	813.2607	2.4900	1.6864	Ethyl_Benzene	1.6864	-0.0111
10	11.283	670307.75	46437.69	VB	1045.6453	6.0850	3.2052	m and p Xylene	3.2052	-0.0473
11	12.907	287132.50	17161.16	BE	847.1597	2.6066	1.6947	o-Xylene	1.6947	-0.0648
12	13.930	6594.00	383.33	EV	1.0000e6	-----	0.0000		0.0000	0.0000
13	14.245	72501.91	17119.15	VE	655.0832	0.6582	0.5534	4-BROMOFLUOROBENZENE	0.5534	-0.0062
14	14.547	3221.00	289.07	EV	1.0000e6	-----	0.0000		0.0000	0.0000
15	14.907	3660.11	534.91	VB	1.0000e6	-----	0.0000		0.0000	0.0000
16	16.644	409.39	63.42	VB	1.0000e6	-----	0.0000		0.0000	0.0000
		2527119.00	248171.63				18.0286		18.0286	-0.1265

Stored in ASCII File: L:\data\tchrom\btex\hp\_u\U\_\_524.TX0

# Chromatogram

Sample Name : 200

FileName : l:\data\tchrom\btex\hp\_u\U\_\_524.raw

Method : BTEXU.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 21.57 min

Plot Offset: 4 mV

Sample #: TC ;S;1

Date : 05/19/95 13:32

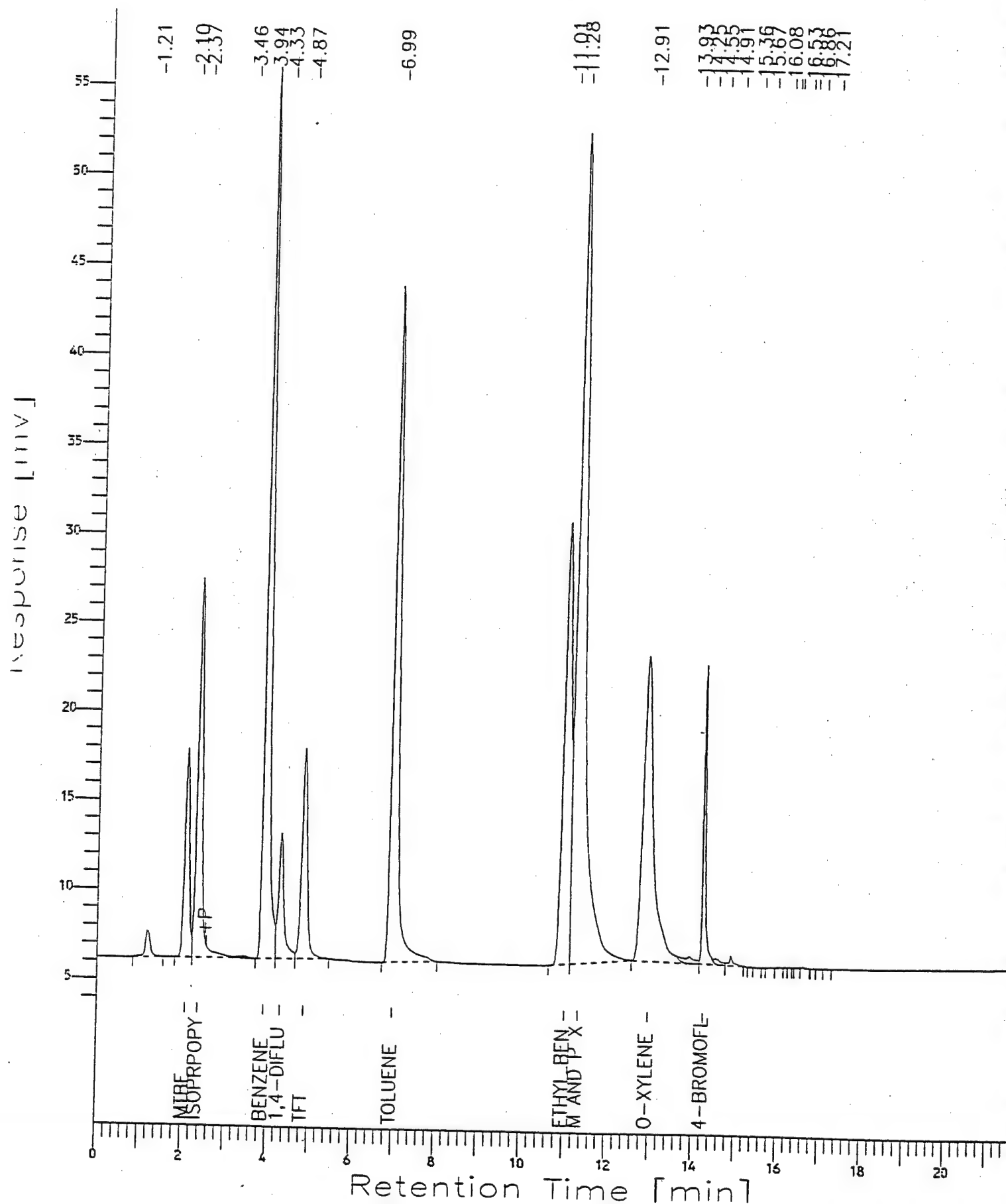
Time of Injection: 05/19/95 13:10

Low Point : 3.71 mV

Plot Scale: 52 mV

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High Point : 55.61 mV



Software Version: 3.2 <16C20>

Sample Name : 400 Time : 05/19/95 13:59  
Sample Number: TC ;S;1 Study : BTEXS6;1;PQL  
Operator : RR

Instrument : HP U Channel : A A/D mV Range : 1000  
Auto Sampler : NONE  
Rack/Vial : 0/0

Interface Serial # : 4153271317 Data Acquisition Time: 05/19/95 13:38  
Delay Time : 0.00 min.  
Sample Time : 21.57 min.  
Sampling Rate : 1.0000 pts/sec

Raw Data File : l:\data\tchrom\btex\hp\_u\U\_525.raw  
Result File : l:\data\tchrom\btex\hp\_u\U\_525.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\BTEXU.ins  
Access File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\US051995.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.seq

Volume : 2 ul Area Reject : 300.00  
Sample Amount : 1.0000 Dilution Factor : 1.00

### BTEX Area Percent Report

Peak	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	1.238	37118.00	6087.75	BB	1.0000e6	-----	0.0001		0.0001	0.0000
2	2.108	163270.67	21764.61	BV	92.3719	1.3968	4.4188	MTBE	4.4188	0.0224
	2.376	359836.41	41647.52	VE	513.8373	3.0785	1.7507	Isoprpopylether	1.7507	-0.0027
	3.452	4484.00	267.42	EV	9.9999e5	-----	0.0000		0.0000	0.0000
	3.957	783281.75	97171.72	VE	1278.2007	6.7011	1.5320	Benzene	1.5320	0.0304
6	4.329	76087.00	7729.04	EV	453.3721	0.6509	0.4196	1,4-DIFLUOROBENZENE	0.4196	0.0055
7	4.870	116888.19	12031.32	VB	-----	1.0000	0.0000	TFT	0.0000	-0.0124
	6.992	738827.00	75079.17	BB	1192.3739	6.3208	1.5491	Toluene	1.5491	-0.0020
	11.016	543784.06	49850.36	BV	862.9457	4.6522	1.5754	Ethyl_Benzene	1.5754	-0.0044
0	11.295	1363092.00	100938.92	VB	1109.5276	11.6615	3.0713	m and p Xylene	3.0713	-0.0354
.1	12.911	590991.75	37492.55	BE	898.9158	5.0560	1.6436	o-Xylene	1.6436	-0.0610
10	13.925	14658.00	862.24	EV	1.0000e6	-----	0.0000		0.0000	0.0000
11	14.243	77072.89	18113.63	VE	695.1046	0.6594	0.2772	4-BROMOFLUOROBENZENE	0.2772	-0.0083
4	14.546	5550.00	530.78	EV	1.0000e6	-----	0.0000		0.0000	0.0000
5	14.800	1138.23	243.38	VV	1.0000e6	-----	0.0000		0.0000	0.0000
16	14.905	7393.14	1596.54	VB	1.0000e6	-----	0.0000		0.0000	0.0000
20	16.631	408.74	58.82	VV	1.0000e6	-----	0.0000		0.0000	0.0000
		4883881.50	471465.75				16.2379		16.2379	-0.0678

Report Stored in ASCII File: l:\data\tchrom\btex\hp\_u\U\_525.TX0

# Chromatogram

Sample Name : 400

File Name : l:\data\tchrom\btex\hp\_u\U\_\_525.raw

Method : BTEXU.ins

Start Time : 0.00 min

Scale Factor: 1

End Time : 21.57 min

Plot Offset: 1 mV

Sample #: TC ;S;1

Date : 05/19/95 13:59

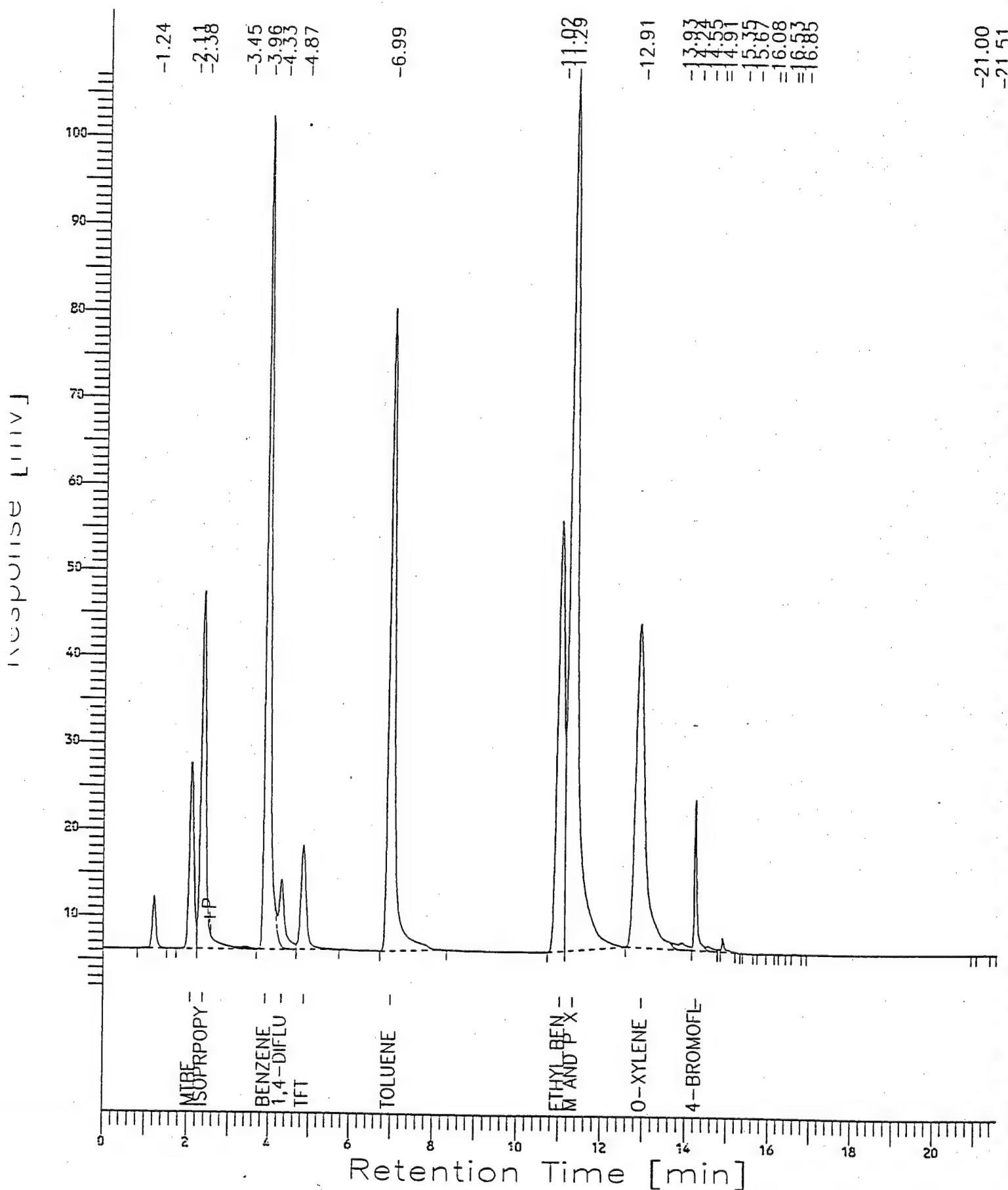
Time of Injection: 05/19/95 13:38

Low Point : 1.14 mV

Plot Scale: 106 mV

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High Point : 107.21 mV



are Version: 3.2 <16C20>

Sample Name : 500  
Sample Number: TC ;S;1  
Detector : RR

Time : 05/19/95 14:23  
Study : BTEXS6;1;PQL

Instrument : HP\_U  
AutoSampler : NONE  
Injection Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 4153271317 Data Acquisition Time: 05/19/95 14:05  
Delay Time : 0.00 min.  
Dead Time : 18.33 min.  
Sampling Rate : 1.0000 pts/sec

Data File : L:\data\tchrom\btex\hp\_u\U\_526.raw  
Result File : L:\data\tchrom\btex\hp\_u\U\_526.rst  
Statement File: L:\DATA\TCHROM\BTEX\METHODS\BTEXU.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.prc  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\US051995.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXU.seq

Injection Volume : 2 ul  
Injection Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

### BTEX Area Percent Report

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1.234	52441.00	9346.67	BB	1.0000e6	-----	0.0001		0.0001	0.0000
2.110	198277.84	25991.61	BV	423.2761	1.6401	0.9369	MTBE	0.9369	0.0245
2.375	458811.16	52302.23	VE	490.6613	3.7951	1.8702	Isoprpopylether	1.8702	-0.0042
3.451	6918.00	359.80	EV	1.0000e6	-----	0.0000		0.0000	0.0000
3.959	976373.81	120059.88	VE	1074.3219	8.0761	1.8177	Benzene	1.8177	0.0320
4.326	86214.00	8361.93	EV	561.8795	0.7131	0.3069	1,4-DIFLUOROBENZENE	0.3069	0.0033
4.866	120896.19	12163.88	VB	-----	1.0000	0.0000	TFT	0.0000	-0.0160
6.990	923563.00	92905.38	BB	1013.0781	7.6393	1.8233	Toluene	1.8233	-0.0042
1.015	680428.63	61499.64	BV	745.5363	5.6282	1.8253	Ethyl_Benzene	1.8253	-0.0048
1.296	1740380.25	127237.54	VV	930.2191	14.3957	3.7419	m and p Xylene	3.7419	-0.0336
12.909	791052.00	48355.70	VE	799.1594	6.5432	1.9797	o-Xylene	1.9797	-0.0628
13.927	31991.00	1552.58	EV	9.9999e5	-----	0.0001		0.0001	0.0000
14.241	89420.91	19250.01	VE	767.4894	0.7397	0.2330	4-BROMOFLUOROBENZENE	0.2330	-0.0101
14.545	10676.00	849.95	EV	1.0000e6	-----	0.0000		0.0000	0.0000
14.800	2664.07	550.79	VV	1.0000e6	-----	0.0000		0.0000	0.0000
14.904	14597.23	2412.42	VB	1.0000e6	-----	0.0000		0.0000	0.0000
16.646	372.55	55.16	VB	1.0000e6	-----	0.0000		0.0000	0.0000
6185077.50		583255.19				14.5350		14.5350	-0.0758

Stored in ASCII File: L:\data\tchrom\btex\hp\_u\U\_526.TX0

# Chromatogram

Sample Name : 500

FileName : l:\data\tchrom\btex\hp\_u\U\_526.raw

Method : BTEXU.ins

Start Time : 0.00 min

Scale Factor: 1

End Time : 18.33 min

Plot Offset: 0 mV

Sample #: TC ;S;1

Date : 05/19/95 14:24

Time of Injection: 05/19/95 14:05

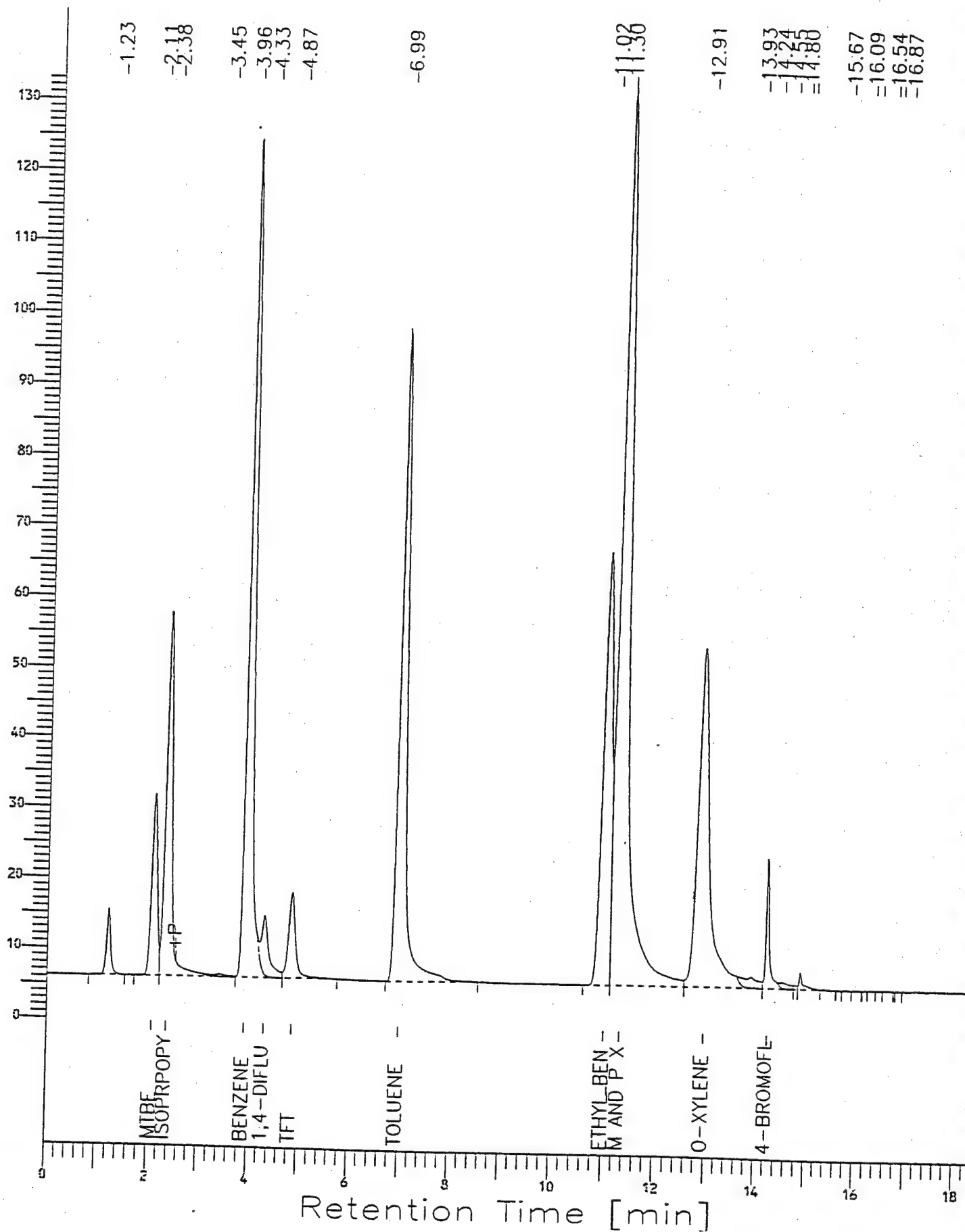
Low Point : -0.17 mV

Plot Scale: 134 mV

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High Point : 133.45 mV

Response [mV]



Sample File : L:\DATA\TCHROM\BTEX\METHODS\8010S522.smp  
Created by : on : 04/12/90 07:45  
Edited by : on : 05/23/95 08:36  
Number Of Times Edited : 68

Sample Description :

Default Injection Volume = 2.0000 ul  
An Internal Standard Calibration Will Be Used  
Unknown Peaks Will Be Quantitated Using A Response Factor of 1000000.000000

Component Information :

Dichlorodifluorometh

Retention Time : 6.970 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name : Dichlorodifluorometh  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	590980.00	68091.93	0.13004	0.50000	1
3	20.0000	1100010.00	121912.09	0.24204	1.00000	1
4	40.0000	2008525.00	241402.45	0.44194	2.00000	1
5	60.0000	3014525.00	336700.59	0.66330	3.00000	1
6	80.0000	3585190.00	444028.94	0.78886	4.00000	1
7	100.0000	4538285.00	521125.81	0.99857	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.205052)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.987088

Chloromethane

Retention Time : 7.944 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name : Chloromethane  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	340226.16	38895.06	0.07486	0.50000	1
3	20.0000	635121.81	72059.74	0.13975	1.00000	1
4	40.0000	1138141.50	125454.48	0.25043	2.00000	1
5	60.0000	1726689.88	188845.50	0.37993	3.00000	1
7	100.0000	2742510.50	324132.41	0.60344	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.123186)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.995869

Vinyl Chloride

Retention Time : 8.451 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name : Vinyl Chloride  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	779093.81	77252.28	0.17143	0.50000	1
3	20.0000	1429565.25	128138.31	0.31455	1.00000	1
4	40.0000	2706658.50	269680.78	0.59556	2.00000	1
5	60.0000	4095170.00	391100.66	0.90107	3.00000	1
6	80.0000	5129597.00	512954.28	1.12868	4.00000	1
7	100.0000	6211549.50	593781.38	1.36675	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.283132)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.992862

Bromomethane



Retention Time : 10.438 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : Bromomethane  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	279038.50	29090.65	0.06140	0.50000	1
3	20.0000	596979.00	58669.34	0.13136	1.00000	1
4	40.0000	1137808.75	117068.88	0.25036	2.00000	1
5	60.0000	1732708.13	175675.66	0.38125	3.00000	1
7	100.0000	2831687.50	287414.75	0.62307	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.125398)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.999605

#### Chloroethane

Retention Time : 10.826 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : Chloroethane  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	762871.50	62705.35	0.16786	0.50000	1
3	20.0000	1369280.88	108935.13	0.30129	1.00000	1
4	40.0000	2765451.25	218152.95	0.60849	2.00000	1
5	60.0000	3877711.75	312375.63	0.85323	3.00000	1
6	80.0000	4971038.00	399809.44	1.09379	4.00000	1
7	100.0000	6623132.50	498939.03	1.45731	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.286400)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.995406

#### Trichlorofluorometha

Retention Time : 12.026 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : Trichlorofluorometha  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	1114175.00	82713.53	0.24516	0.50000	1
3	20.0000	2066000.00	155777.13	0.45459	1.00000	1
4	40.0000	3933630.00	285010.38	0.86553	2.00000	1
5	60.0000	5542720.00	407869.50	1.21958	3.00000	1
6	80.0000	7270320.00	512396.53	1.59971	4.00000	1
7	100.0000	9286430.00	646033.69	2.04332	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.408732)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.996869

#### 1,1-Dichloroethene

Retention Time : 14.758 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : 1,1-Dichloroethene  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	833214.81	78851.46	0.18334	0.50000	1
3	20.0000	1701080.00	148223.98	0.37429	1.00000	1
4	40.0000	3293890.00	276600.16	0.72477	2.00000	1

5	60.0000	4708260.00	400188.72	1.03597	3.00000	1
6	80.0000	5976335.00	492886.22	1.31499	4.00000	1
7	100.0000	6939304.50	623066.19	1.52688	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.324303)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.984229

#### Methylene Chloride

Retention Time : 16.781 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : Methylene Chloride  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	1054660.00	99357.09	0.23206	0.50000	1
3	20.0000	1720425.00	153435.00	0.37855	1.00000	1
4	40.0000	2639150.00	250715.88	0.58070	2.00000	1
5	60.0000	3848051.25	356747.97	0.84670	3.00000	1
7	100.0000	6509183.50	560778.69	1.43224	5.00000	1

Calibration Curve :  $y = (0.087479) + (0.263726)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.995766

#### trans-1,2-Dichlethen

Retention Time : 18.033 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : trans-1,2-Dichlethen  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	984275.00	104108.86	0.21657	0.50000	1
3	20.0000	1967330.00	204008.86	0.43288	1.00000	1
4	40.0000	3772675.00	373786.91	0.83011	2.00000	1
5	60.0000	5639198.50	546862.44	1.24081	3.00000	1
7	100.0000	9033516.00	853369.50	1.98767	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.404132)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.998279

#### 1,1-Dichloroethane

Retention Time : 19.687 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : 1,1-Dichloroethane  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	991040.00	102566.38	0.21806	0.50000	1
3	20.0000	2014735.00	203501.47	0.44331	1.00000	1
4	40.0000	3702295.00	363250.06	0.81463	2.00000	1
5	60.0000	5476970.00	534950.88	1.20512	3.00000	1
7	100.0000	8800640.00	832694.94	1.93643	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.394372)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.997161

#### Chloroform

Retention Time : 22.567 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : Chloroform  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	1098335.00	123334.20	0.24167	0.50000	1
3	20.0000	2244380.00	246025.50	0.49384	1.00000	1
4	40.0000	3896775.00	421242.00	0.85742	2.00000	1
5	60.0000	6024840.00	622682.50	1.32566	3.00000	1
7	100.0000	9590860.00	974742.19	2.11031	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.429504)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.996516

## 1,1,1-Trichloroethan

Retention Time : 24.040 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name : 1,1,1-Trichloroethan  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	1290640.00	126820.86	0.28398	0.50000	1
3	20.0000	2475400.00	235396.27	0.54467	1.00000	1
4	40.0000	4612260.00	431662.63	1.01485	2.00000	1
5	60.0000	6929870.00	633225.31	1.52480	3.00000	1
6	80.0000	8241180.00	752065.13	1.81333	4.00000	1
7	100.0000	10888040.00	958077.50	2.39573	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.480050)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.991314

Carbon Tetrachloride - *ux Rf*

Retention Time : 24.970 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name : Carbon Tetrachloride  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	1451786.88	147784.64	0.31944	0.50000	1
3	20.0000	2794042.50	275276.97	0.61478	1.00000	1
4	40.0000	5197069.50	503806.06	1.14353	2.00000	1
5	60.0000	7723500.00	744714.06	1.69943	3.00000	1
6	80.0000	9205720.00	876056.56	2.02556	4.00000	1
7	100.0000	11902950.00	1.11e6	2.61904	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.531354)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.989814

## 1,2-Dichloroethane

Retention Time : 25.495 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name :  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	457993.19	53302.37	0.10077	0.50000	1
3	20.0000	1070077.50	118713.65	0.23545	1.00000	1
4	40.0000	1717420.25	190974.48	0.37789	2.00000	1
5	60.0000	2684580.00	296567.72	0.59070	3.00000	1
7	100.0000	4613210.00	476495.69	1.01506	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.200994)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.996048

## Trichloroethene

Retention Time : 27.685 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : Trichloroethene  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	1284913.00	139747.38	0.28272	0.50000	1
3	20.0000	2646005.50	283607.97	0.58221	1.00000	1
4	40.0000	4522198.50	484216.72	0.99503	2.00000	1
5	60.0000	6724703.50	720184.69	1.47966	3.00000	1
6	80.0000	8062941.00	851126.56	1.77411	4.00000	1
7	100.0000	10473555.00	1.11e6	2.30453	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.466456)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.987752

#### 1,2-Dichloropropane

Retention Time : 28.351 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name :  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	717767.00	77712.95	0.15793	0.50000	1
3	20.0000	1544304.50	164492.95	0.33980	1.00000	1
4	40.0000	2658146.25	276362.84	0.58488	2.00000	1
5	60.0000	4022636.25	416887.50	0.88511	3.00000	1
7	100.0000	6440764.50	638854.00	1.41718	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.288657)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.996026

#### Bromodichloromethane

Retention Time : 29.279 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name : Bromodichloromethane  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Curve Will Be Forced Through The Origin  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	557550.00	59372.66	0.12268	0.50000	1
3	20.0000	1234019.88	127855.32	0.27153	1.00000	1
4	40.0000	2133550.00	216720.77	0.46945	2.00000	1
5	60.0000	3272835.00	330157.00	0.72013	3.00000	1
7	100.0000	5229240.00	521309.03	1.15061	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.234018)x + (0.000000)x^2 + (0.000000)x^3$   
 R-squared : 0.996728

#### 2-chlorethvinylether

Retention Time : 30.429 min Search Window: 20.00 sec, 0.00 %  
 Reference Component: (Find Closest Peak)  
 Internal Standard : 1-CHLORO-2-FLUOROB  
 Group Name :  
 Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
 Amounts Will Not Be Scaled Prior To The Regression  
 Weighting Factor For the Regression: 1  
 Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
1	5.0000	14565.00	1819.83	0.00321	0.25000	1
2	10.0000	35600.00	4041.11	0.00783	0.50000	1
3	20.0000	77450.00	8911.25	0.01704	1.00000	1
4	40.0000	239350.00	26944.27	0.05267	2.00000	1
5	60.0000	343870.00	38568.75	0.07566	3.00000	1

6	80.0000	497849.91	56135.77	0.10954	4.00000	1
7	100.0000	605950.88	69186.08	0.13333	5.00000	1

Calibration Curve :  $y = (-0.006415) + (0.028202)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.996582

#### cis-1,3-Dichloroprop

Retention Time : 31.608 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name : cis-1,3-Dichloroprop  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	492254.91	46525.84	0.10831	0.50000	1
3	20.0000	1107765.00	103023.26	0.24375	1.00000	1
4	40.0000	1906620.00	176268.53	0.41952	2.00000	1
5	60.0000	2881565.00	270762.81	0.63404	3.00000	1
7	100.0000	4539200.00	426264.22	0.99877	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.204661)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.994554

#### trans-1,3-Dichloropr

Retention Time : 33.904 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name : trans-1,3-Dichloropr  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	318350.00	28748.90	0.07005	0.50000	1
3	20.0000	723081.31	66392.11	0.15910	1.00000	1
4	40.0000	1235790.50	113301.25	0.27192	2.00000	1
5	60.0000	1884480.00	175802.30	0.41465	3.00000	1
7	100.0000	3011490.25	288230.59	0.66263	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.134905)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.996142

#### 1,1,2-Trichloroethan

Retention Time : 34.613 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name :  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	369180.00	38594.93	0.08123	0.50000	1
3	20.0000	837138.56	87160.62	0.18420	1.00000	1
4	40.0000	1375979.63	142317.17	0.30276	2.00000	1
5	60.0000	2114980.00	219026.98	0.46537	3.00000	1
7	100.0000	3368389.75	352447.69	0.74116	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.151139)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.994483

#### Tetrachloroethene

Retention Time : 36.164 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name :  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	1185310.00	128191.17	0.26081	0.50000	1
3	20.0000	2462070.00	263066.41	0.54174	1.00000	1
4	40.0000	4372116.50	456555.59	0.96201	2.00000	1
5	60.0000	6450266.00	660069.63	1.41927	3.00000	1
7	100.0000	9900765.00	1.00e6	2.17850	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.452139)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.989864

## Dibromochloromethane

Retention Time : 36.961 min Search Window: 20.00 sec, 0.00 %

Reference Component: (Find Closest Peak)

Internal Standard : 1-CHLORO-2-FLUOROB

Group Name :

Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit

Curve Will Be Forced Through The Origin

Amounts Will Not Be Scaled Prior To The Regression

Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	248640.00	26751.33	0.05471	0.50000	1
3	20.0000	577335.00	60508.99	0.12703	1.00000	1
4	40.0000	975253.38	99433.06	0.21459	2.00000	1
5	60.0000	1550878.75	156384.52	0.34125	3.00000	1
7	100.0000	2465895.25	251229.08	0.54258	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.110069)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.996622

## chlorobenzene

Retention Time : 39.744 min Search Window: 20.00 sec, 0.00 %

Reference Component: (Find Closest Peak)

Internal Standard : 1-CHLORO-2-FLUOROB

Group Name :

Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit

Curve Will Be Forced Through The Origin

Amounts Will Not Be Scaled Prior To The Regression

Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	374754.97	44027.40	0.08246	0.50000	1
3	20.0000	755760.00	87755.27	0.16629	1.00000	1
4	40.0000	1308510.00	151869.95	0.28792	2.00000	1
5	60.0000	2015070.13	234288.92	0.44338	3.00000	1
7	100.0000	3228780.00	372302.03	0.71044	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.144349)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.996671

## 1-CHLORO-2-FLUOROB

Retention Time : 40.727 min Search Window: 20.00 sec, 0.00 %

Reference Component: (Find Closest Peak)

Internal Standard : 1-CHLORO-2-FLUOROB

Group Name : INTERNAL STD

Calibrating Area Ratio versus Amount Ratio Using a Pt. to Pt. Fit

Curve Will Be Forced Through The Origin

Amounts Will Not Be Scaled Prior To The Regression

Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
3	20.0000	4544770.00	505925.03	1.00000	1.00000	1

## Bromoform

Retention Time : 43.740 min Search Window: 20.00 sec, 0.00 %

Reference Component: (Find Closest Peak)

Internal Standard : 1-CHLORO-2-FLUOROB

Group Name : Bromoform

Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit

Curve Will Be Forced Through The Origin

Amounts Will Not Be Scaled Prior To The Regression

Weighting Factor For the Regression: 1

## Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	69090.00	8526.15	0.01520	0.50000	1
3	20.0000	200469.95	23761.81	0.04411	1.00000	1
4	40.0000	323269.88	37511.35	0.07113	2.00000	1
5	60.0000	533237.88	59123.03	0.11733	3.00000	1
7	100.0000	873541.25	96709.63	0.19221	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.038395)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.995563

#### 1,1,2,2-Tetrachloroe

Retention Time : 44.392 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name :  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	94020.04	12107.91	0.02069	0.50000	1
3	20.0000	260869.95	33421.41	0.05740	1.00000	1
4	40.0000	384170.00	49065.76	0.08453	2.00000	1
5	60.0000	584282.00	74372.27	0.12856	3.00000	1
7	100.0000	956419.00	120345.29	0.21044	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.042668)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.989381

#### 1,3-Dichlorobenzene

Retention Time : 49.415 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name : 2-Chlorotoluene  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	282313.16	40760.02	0.06212	0.50000	1
3	20.0000	598782.50	85739.61	0.13175	1.00000	1
4	40.0000	1087170.63	154699.78	0.23921	2.00000	1
5	60.0000	1610903.38	229577.83	0.35445	3.00000	1
7	100.0000	2636333.50	364431.78	0.58008	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.117325)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.998259

#### 1,4-Dichlorobenzene

Retention Time : 49.841 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB  
Group Name :  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	239226.88	36148.00	0.05264	0.50000	1
3	20.0000	514817.53	76347.79	0.11328	1.00000	1
4	40.0000	931659.38	137049.95	0.20500	2.00000	1
5	60.0000	1417836.50	209430.56	0.31197	3.00000	1
7	100.0000	2342509.75	334336.28	0.51543	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.103507)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.999199

#### 1,2-Dichlorobenzene

Retention Time : 51.336 min Search Window: 20.00 sec, 0.00 %  
Reference Component: (Find Closest Peak)  
Internal Standard : 1-CHLORO-2-FLUOROB



Group Name :  
Calibrating Area Ratio versus Amount Ratio Using a 1st Order Fit  
Curve Will Be Forced Through The Origin  
Amounts Will Not Be Scaled Prior To The Regression  
Weighting Factor For the Regression: 1  
Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replicates
2	10.0000	211955.03	31520.67	0.04664	0.50000	1
3	20.0000	462045.06	67882.03	0.10167	1.00000	1
4	40.0000	791589.94	115420.74	0.17418	2.00000	1
5	60.0000	1226850.13	178257.98	0.26995	3.00000	1
7	100.0000	2026050.00	286890.91	0.44580	5.00000	1

Calibration Curve :  $y = (0.000000) + (0.089482)x + (0.000000)x^2 + (0.000000)x^3$   
R-squared : 0.998182



\*\*\*\*\* CALIBRATION CURVE % RSD \*\*\*\*\*

Sample Name	File Name	Dichlorodifluoromethane Custom Expression	Chloromethane Custom Expression	Vinyl Chloride Custom Expression	Bromomethane Custom Expression	Chloroethane Custom Expression
TD_10	ff_773.rs	0.1692	0.2939	0.1284	0.3584	0.1311
TD_20	ff_774.rs	0.1818	0.3149	0.1399	0.3350	0.1461
TD_40	ff_775.rs	0.1992	0.3515	0.1478	0.3516	0.1446
TD_60	ff_776.rs	0.1990	0.3475	0.1465	0.3463	0.1547
TD_100	ff_778.rs	0.2204	0.3646	0.1610	0.3532	0.1510
Averages		0.1939	0.3345	0.1447	0.3489	0.1455
SD		10.02	8.71	8.24	2.54	6.19

Sample Name	File Name	Trichlorofluoromethane Custom Expression	1,1-Dichloroethene Custom Expression	Methylene Chloride Custom Expression	trans-1,2-Dichloroethene Custom Expression	1,1-Dichloroethane Custom Expression
TD_10	ff_773.rs	0.0898	0.1200	0.0948	0.1016	0.1009
TD_20	ff_774.rs	0.0968	0.1176	0.1163	0.1017	0.0993
TD_40	ff_775.rs	0.1017	0.1214	0.1516	0.1060	0.1080
TD_60	ff_776.rs	0.1083	0.1274	0.1559	0.1064	0.1096
TD_100	ff_778.rs	0.1077	0.1441	0.1536	0.1107	0.1136
Averages		0.1008	0.1261	0.1344	0.1053	0.1063
SD		7.71	8.48	20.45	3.61	5.68

Sample Name	File Name	Chloroform Custom Expression	1,1,1-Trichloroethane Custom Expression	Carbon Tetrachloride Custom Expression	1,2-Dichloroethane Custom Expression	Trichloroethene Custom Expression
TD_10	ff_773.rs	0.0911	0.0775	0.0689	0.2183	0.0778
TD_20	ff_774.rs	0.0891	0.0808	0.0716	0.1869	0.0756
TD_40	ff_775.rs	0.1027	0.0867	0.0770	0.2329	0.0885
TD_60	ff_776.rs	0.0996	0.0866	0.0777	0.2235	0.0892
TD_100	ff_778.rs	0.1043	0.0918	0.0840	0.2168	0.0955
Averages		0.0973	0.0847	0.0758	0.2157	0.0853
SD		7.05	6.63	7.75	8.01	9.79

Sample Name	File Name	1,2-Dichloropropane Custom Expression	Bromodichloromethane Custom Expression	2-chloroethvinylether Custom Expression	cis-1,3-Dichloropropane Custom Expression	trans-1,3-Dichloropropane Custom Expression
TD_10	ff_773.rs	0.1393	0.1794	-----	0.2032	0.3141
TD_20	ff_774.rs	0.1295	0.1621	-----	0.1805	0.2766
TD_40	ff_775.rs	0.1505	0.1875	-----	0.2098	0.3237
TD_60	ff_776.rs	0.1492	0.1833	-----	0.2082	0.3184
TD_100	ff_778.rs	0.1553	0.1912	-----	0.2203	0.3321
Averages		0.1448	0.1807	-----	0.2044	0.3130
SD		7.12	6.27	-----	7.20	6.84

Sample Name	File Name	1,1,2-Trichloroethane Custom Expression	Tetrachloroethene Custom Expression	Dibromochloromethane Custom Expression	chlorobenzene Custom Expression	Bromoform Custom Expression
TD_10	ff_773.rs	0.2709	0.0844	0.4022	0.2668	1.4474
TD_20	ff_774.rs	0.2389	0.0812	0.3464	0.2646	0.9977
TD_40	ff_775.rs	0.2907	0.0915	0.4102	0.3057	1.2374
TD_60	ff_776.rs	0.2837	0.0930	0.3869	0.2978	1.1252
TD_100	ff_778.rs	0.2969	0.1010	0.4055	0.3097	1.1448
Averages		0.2762	0.0902	0.3902	0.2889	1.1905
SD		8.32	8.60	6.66	7.48	14.04

Sample Name	File Name	1,1,2,2-Tetrachloroethane Custom Expression	1,3-Dichlorobenzene Custom Expression	1,4-Dichlorobenzene Custom Expression	1,2-Dichlorobenzene Custom Expression
TD_10	ff_773.rs	1.0636	0.3542	0.4180	0.4718
TD_20	ff_774.rs	0.7667	0.3340	0.3885	0.4329
TD_40	ff_775.rs	1.0412	0.3679	0.4293	0.5053
TD_60	ff_776.rs	1.0269	0.3725	0.4232	0.4891
TD_100	ff_778.rs	1.0456	0.3793	0.4269	0.4936
Averages		0.9888	0.3616	0.4172	0.4785
SD		12.63	4.96	3.98	5.90

File Created Successfully - Stored in: l:\data\tchrom\btex\hp\_p\601SUMMF.prn

Software Version: 3.2 <16C20>  
 Sample Name : STD\_5 Time : 05/22/95 23:41  
 Sample Number: TC ;S; Study : 8010S;1;PQL  
 Sample : JZL  
 Instrument : HP\_F Channel : B A/D mV Range : 10000  
 Sampler : OTHER TYPE  
 Vial : 0/0

Sample Serial # : 1092573379 Data Acquisition Time: 05/22/95 22:37  
 Sample Time : 0.00 min.  
 Time : 63.00 min.  
 Sampling Rate : 1.0000 pts/sec

Data File : L:\data\tchrom\btex\varf\FF\_772.raw  
 Alt File : L:\data\tchrom\btex\varf\FF\_772.rst  
 Instrument File: L:\DATA\TCHROM\BTEX\METHODS\601F.ins  
 Sample File : L:\DATA\TCHROM\BTEX\METHODS\601F.prc  
 Sample File : L:\DATA\TCHROM\BTEX\METHODS\8010S522.smp  
 Sample File : L:\DATA\TCHROM\BTEX\METHODS\8010S.seq

Sample Volume : 2 ul Area Reject : 300.00  
 Sample Amount : 1.0000 Dilution Factor : 1.00

# BTEX Area Percent Report

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L
6.017	186650.00	20201.23	BB	1.0000e6	-----	0.0373		0.0373
6.819	113565.00	17860.34	BB	2284.3774	0.1982	9.9428	Dichlorodifluorometh	9.9428
7.840	35485.00	5696.44	BB	5763.3877	0.0619	1.2314	Chloromethane	1.2314
8.337	137525.00	18681.28	BB	6253.4116	0.2400	4.3984	Vinyl Chloride	4.3984
10.370	16410.90	1987.03	BV	3368.1609	0.0286	0.9745	Bromomethane	0.9745
10.737	104469.10	11287.72	VB	7821.4981	0.1823	2.6713	Chloroethane	2.6713
11.977	226570.00	17720.59	BB	10119.9375	0.3953	4.4777	Trichlorofluorometha	4.4777
14.730	155475.00	15050.60	BB	10061.5020	0.2713	3.0905	1,1-Dichloroethene	3.0905
16.764	99740.00	11286.97	BB	-2519.4150	0.1740	-7.9177	Methylene Chloride	-7.9177
18.024	121960.00	13212.19	BB	11162.6084	0.2128	2.1852	trans-1,2-Dichlethen	2.1852
19.674	98875.00	10643.06	BB	11128.3779	0.1725	1.7770	1,1-Dichloroethane	1.7770
22.554	87750.00	10319.71	BB	7587.7349	0.1531	2.3129	Chloroform	2.3129
24.018	199360.00	20374.08	BB	13066.2959	0.3478	3.0515	1,1,1-Trichloroethan	3.0515
24.949	246485.00	26076.40	BB	14504.2891	0.4301	3.3988	Carbon Tetrachloride	3.3988
27.694	143140.00	16319.38	BB	12675.2256	0.2498	2.2586	Trichloroethene	2.2586
28.323	37400.00	4401.81	BB	7538.6382	0.0653	0.9922	1,2-Dichloropropane	0.9922
29.256	18250.00	2264.07	BB	4799.3081	0.0318	0.7605	Bromodichloromethane	0.7605
36.163	156870.03	17294.01	BB	12218.3574	0.2737	2.5678	Tetrachloroethene	2.5678
40.768	573135.00	63250.97	BB	-----	1.0000	0.0000	1-CHLORO-2-FLUOROB	0.0000
2759115.00		303927.88				38.2106		38.2106

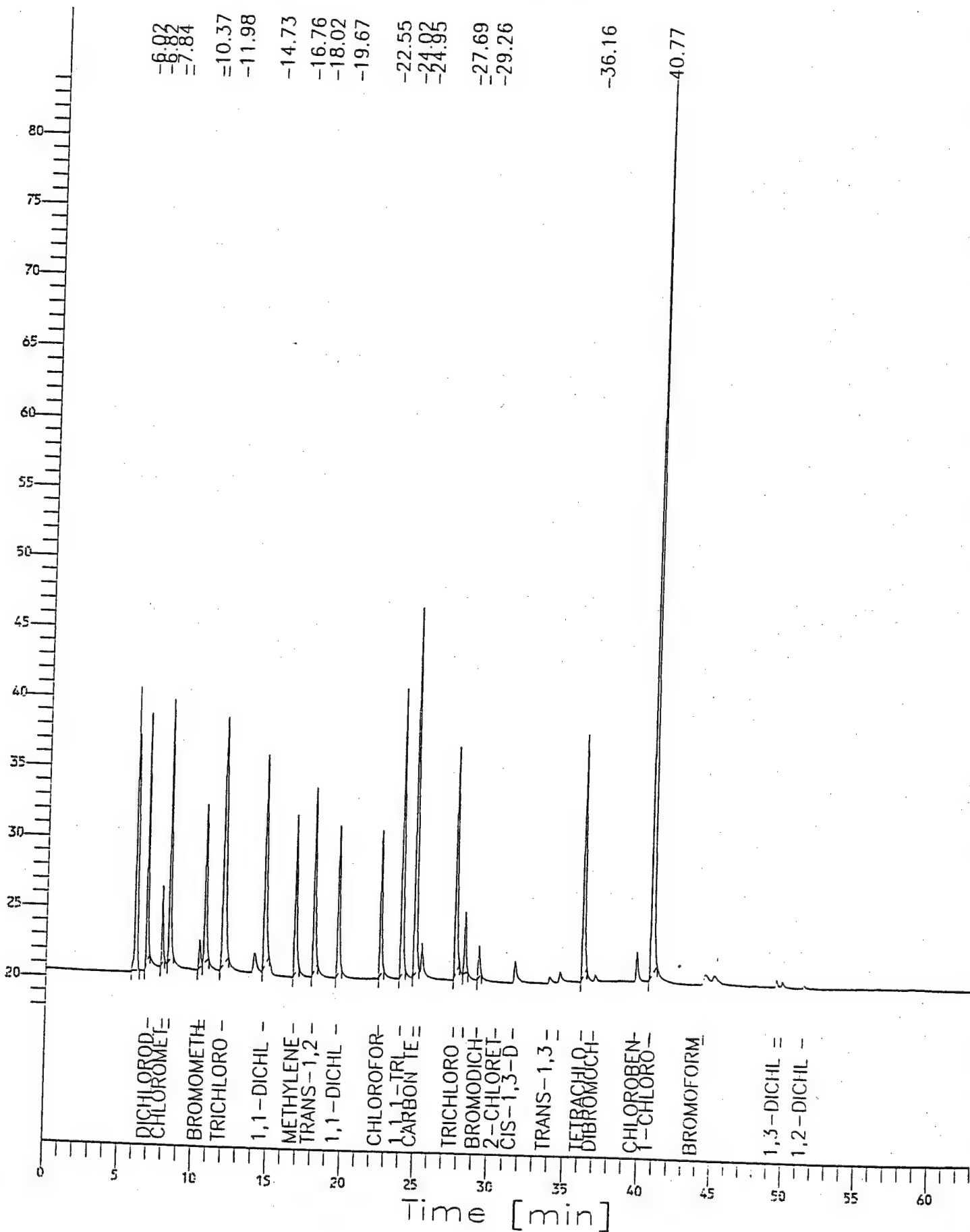
Stored in ASCII File: L:\data\tchrom\btex\varf\FF\_772.TX0

# Chromatogram

Sample Name : STD\_5  
 FileName : l:\data\tchrom\btex\varf\FF\_772.raw  
 Method : 601F.ins  
 Start Time : 0.00 min  
 Scale Factor : 1

End Time : 63.00 min  
 Plot Offset: 17 mV

Sample #: TC ;S;  
 Date : 05/22/95 23:41  
 Time of Injection: 05/22/95 22:37  
 Low Point : 17.20 mV  
 Plot Scale: 67 mV  
 Page 1 of 1  
 High Point : 84.46 mV



Software Version: 3.2 <16C20>  
Sample Name : STD\_10  
Sample Number: TC ;S;  
Operator : JZL  
Instrument : HP\_F  
AutoSampler : OTHER TYPE  
Vial/Vial : 0/0  
Time : 05/23/95 12:50  
Study : 8010S;1;PQL  
Channel : B A/D mV Range : 10000

Interface Serial # : 1092573379 Data Acquisition Time: 05/22/95 23:47  
Sample Time : 0.00 min.  
End Time : 63.00 min.  
Sampling Rate : 1.0000 pts/sec

Data File : l:\data\tchrom\btex\varf\FF\_773.raw  
Result File : l:\data\tchrom\btex\varf\FF\_773.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\601F.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\601F.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\8010S522.smp  
Reference File : L:\DATA\TCHROM\BTEX\METHODS\8010S.seq

Injection Volume : 2 ul  
Sample Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

BTEX Area Percent Report

#	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L
1	6.970	590980.00	68091.93	BB	18547.3848	0.1270	3.1863	Dichlorodifluorometh	3.1863
2	7.950	340226.16	38895.06	BV	46794.2734	0.0731	0.7271	Chloromethane	0.7271
3	8.463	779093.81	77252.28	VB	50772.8906	0.1674	1.5345	Vinyl Chloride	1.5345
4	10.445	279038.50	29090.65	BV	27346.8750	0.0600	1.0204	Bromomethane	1.0204
5	10.837	762871.50	62705.35	VB	63504.5430	0.1639	1.2013	Chloroethane	1.2013
6	12.036	1114175.00	82713.53	BB	82166.1016	0.2394	1.3560	Trichlorofluorometha	1.3560
7	14.094	50960.00	3843.93	BB	1.0000e6	-----	0.0051		0.0051
8	14.767	833214.81	78851.46	BB	81691.6563	0.1791	1.0200	1,1-Dichloroethene	1.0200
9	16.812	1054660.00	99357.09	BB	-3.3776e4	0.2266	-3.1224	Methylene Chloride	-3.1224
10	18.044	984275.00	104108.86	BB	90631.7813	0.2115	1.0860	trans-1,2-Dichlethen	1.0860
11	19.687	991040.00	102566.38	BB	90353.8672	0.2130	1.0968	1,1-Dichloroethane	1.0968
12	22.549	1098335.00	123334.20	BB	61606.5664	0.2360	1.7828	Chloroform	1.7828
13	24.011	1290640.00	126820.86	BB	1.0608e5	0.2774	1.2166	1,1,1-Trichloroethan	1.2166
14	24.941	1451786.88	147784.64	BV	1.1776e5	0.3120	1.2328	Carbon Tetrachloride	1.2328
15	25.406	457993.19	53302.37	VB	36198.8086	0.0984	1.2652	1,2-Dichloroethane	1.2652
16	27.695	1284913.00	139747.38	BV	1.0291e5	0.2761	1.2485	Trichloroethene	1.2485
17	28.328	717767.00	77712.95	VB	61207.9492	0.1543	1.1727	1,2-Dichloropropane	1.1727
18	29.257	557550.00	59372.66	BB	38966.6836	0.1198	1.4308	Bromodichloromethane	1.4308
19	31.622	492254.91	46525.84	BB	33590.5742	0.1058	1.4655	cis-1,3-Dichloroprop	1.4655
20	33.917	318350.00	28748.90	BB	23684.7481	0.0684	1.3441	trans-1,3-Dichloropr	1.3441
21	34.628	369180.00	38594.93	BB	28874.6699	0.0793	1.2786	1,1,2-Trichloroethan	1.2786
22	36.173	1185310.00	128191.17	BB	99203.6641	0.2547	1.1948	Tetrachloroethene	1.1948
23	36.987	248640.00	26751.33	BB	21732.7637	0.0534	1.1441	Dibromochloromethane	1.1441
24	39.755	374754.97	44027.40	BB	22177.0508	0.0805	1.6898	chlorobenzene	1.6898
25	40.744	4653415.00	515723.00	BB	-----	1.0000	0.0000	1-CHLORO-2-FLUOROB	0.0000
26	43.768	69090.00	8526.15	BB	8841.4150	0.0149	0.7814	Bromoform	0.7814
27	44.408	94020.04	12107.91	BB	9033.3604	0.0202	1.0408	1,1,2,2-Tetrachloroe	1.0408
28	49.426	282313.16	40760.02	BV	33139.2383	0.0607	0.8519	1,3-Dichlorobenzene	0.8519
29	49.851	239226.88	36148.00	VB	26720.0859	0.0514	0.8953	1,4-Dichlorobenzene	0.8953
30	51.347	211955.03	31520.67	BB	18141.4844	0.0456	1.1683	1,2-Dichlorobenzene	1.1683
		23178030.00	2.43e6				31.3151		31.3151

Report Stored in ASCII File: l:\data\tchrom\btex\varf\FF\_773.TX0

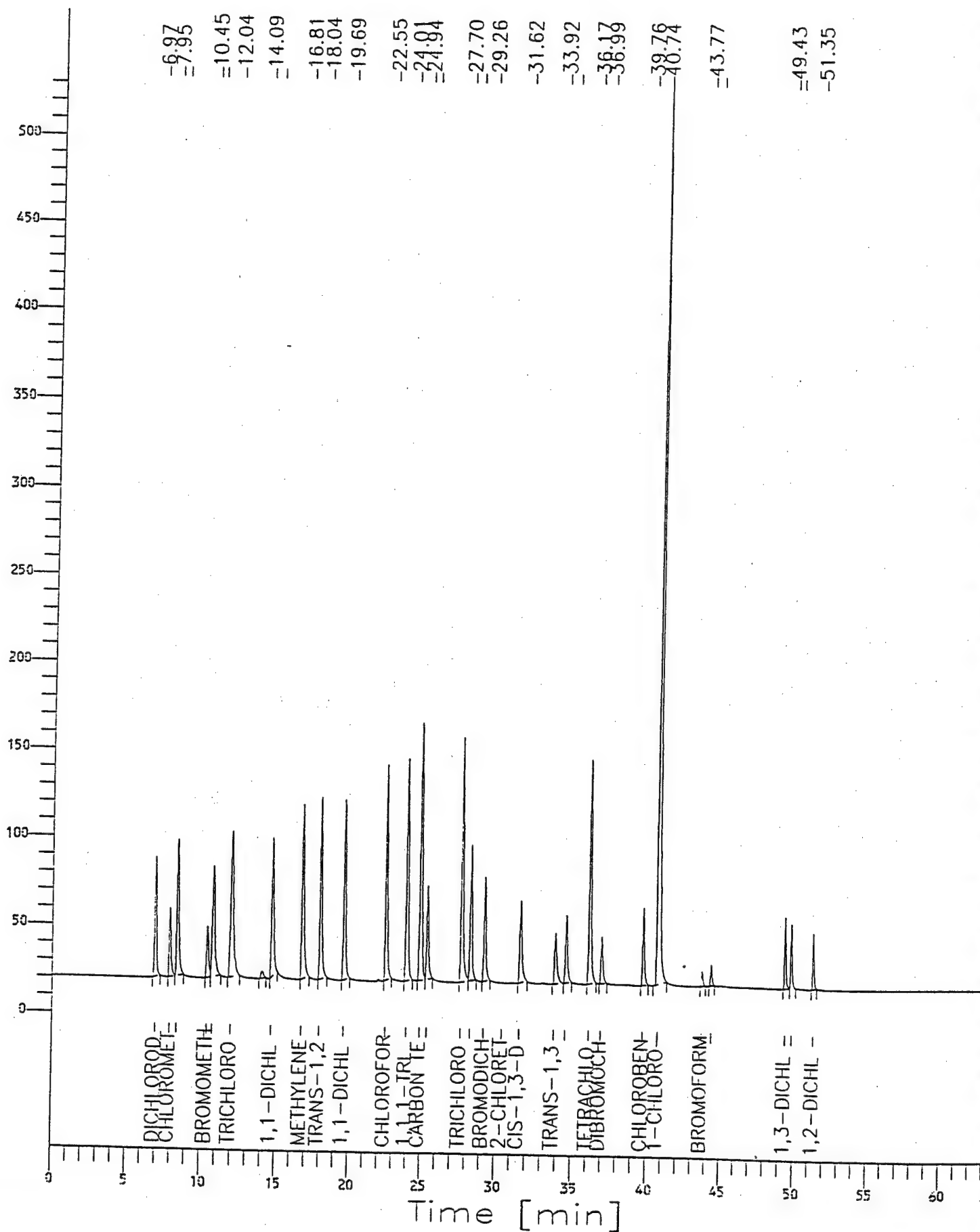
# Chromatogram

Sample Name : STD\_10  
 File Name : l:\data\tchrom\btext\varf\FF\_773.raw  
 Method : 601F.ins  
 Start Time : 0.00 min  
 Scale Factor : 1

End Time : 63.00 min  
 Plot Offset : -5 mV

Sample #: TC ;S;  
 Date : 05/23/95 12:50  
 Time of Injection: 05/22/95 23:47  
 Low Point : -5.31 mV  
 Plot Scale: 540 mV  
 High Point : 534.25 mV

Page 1 of 1



Software Version: 3.2 <16C20>  
Sample Name : STD\_20  
Sample Number: TC ;S;  
Operator : JZL  
Time : 05/23/95 02:00  
Study : 8010S;1;PQL  
Instrument : HP\_F  
Channel : B A/D mV Range : 10000  
Injection Sampler : OTHER TYPE  
Injection Volume : 0/0

Injection Volume : 2 ul  
Injection Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00  
Data File : L:\data\tchrom\btex\varf\FF\_774.raw  
Result File : L:\data\tchrom\btex\varf\FF\_774.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\601F.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\601F.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\8010S522.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\8010S.seq

# BTEX Area Percent Report

Peak Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L
6.971	1100010.00	121912.09	BB	18114.3535	0.2420	3.0363	Dichlorodifluorometh	3.0363
7.944	635121.81	72059.74	BV	45701.7500	0.1398	0.6949	Chloromethane	0.6949
8.456	1429565.25	128138.31	VB	49587.4805	0.3146	1.4415	Vinyl Chloride	1.4415
10.438	596979.00	58669.34	BV	26708.3984	0.1314	1.1176	Bromomethane	1.1176
10.824	1369280.88	108935.13	VB	62021.8711	0.3013	1.1039	Chloroethane	1.1039
12.026	2066000.00	155777.13	BB	80247.7422	0.4546	1.2873	Trichlorofluorometha	1.2873
14.075	46885.00	3663.95	BB	1.0000e6	-----	0.0023		0.0023
14.751	1701080.00	148223.98	BB	79784.3594	0.3743	1.0661	1,1-Dichloroethene	1.0661
16.781	1720425.00	153435.00	BB	-2.4313e5	0.3786	-0.3538	Methylene Chloride	-0.3538
18.034	1967330.00	204008.86	BB	88515.7656	0.4329	1.1113	trans-1,2-Dichlethen	1.1113
19.687	2014735.00	203501.47	BB	88244.3359	0.4433	1.1416	1,1-Dichloroethane	1.1416
22.004	20270.00	2781.17	BB	1.0000e6	-----	0.0010		0.0010
22.567	2244380.00	246025.50	BB	60168.2109	0.4938	1.8651	Chloroform	1.8651
24.040	2475400.00	235396.27	BB	1.0361e5	0.5447	1.1946	1,1,1-Trichloroethan	1.1946
24.970	2794042.50	275276.97	BV	1.1501e5	0.6148	1.2147	Carbon Tetrachloride	1.2147
25.432	1070077.50	118713.65	VB	35353.6602	0.2355	1.5134	1,2-Dichloroethane	1.5134
27.718	2646005.50	283607.97	BV	1.0051e5	0.5822	1.3163	Trichloroethene	1.3163
28.351	1544304.50	164492.95	VB	59778.9023	0.3398	1.2917	1,2-Dichloropropane	1.2917
29.279	1234019.88	127855.32	BB	38056.9180	0.2715	1.6213	Bromodichloromethane	1.6213
31.629	1107765.00	103023.26	BB	32806.3203	0.2438	1.6883	cis-1,3-Dichloroprop	1.6883
33.905	723081.31	66392.11	BV	23131.7734	0.1591	1.5630	trans-1,3-Dichloropr	1.5630
34.615	837138.56	87160.62	VB	28200.5215	0.1842	1.4843	1,1,2-Trichloroethan	1.4843
36.154	2462070.00	263066.41	BB	96887.5156	0.5417	1.2706	Tetrachloroethene	1.2706
36.961	577335.00	60508.99	BB	21225.3633	0.1270	1.3600	Dibromochloromethane	1.3600
39.734	755760.00	87755.27	BB	21659.2754	0.1663	1.7447	chlorobenzene	1.7447
40.727	4544770.00	505925.03	BB	-----	1.0000	0.0000	1-CHLORO-2-FLUOROB	0.0000
43.740	200469.95	23761.81	BB	8634.9912	0.0441	1.1608	Bromoform	1.1608
44.392	260869.95	33421.41	BB	8822.4551	0.0574	1.4784	1,1,2,2-Tetrachloroe	1.4784
49.423	598782.50	85739.61	BV	32365.5176	0.1318	0.9250	1,3-Dichlorobenzene	0.9250
49.852	514817.53	76347.79	VB	26096.2422	0.1133	0.9864	1,4-Dichlorobenzene	0.9864
51.356	462045.06	67882.03	BB	17717.9297	0.1017	1.3039	1,2-Dichlorobenzene	1.3039
56.525	12880.00	1998.83	BB	1.0000e6	-----	0.0006		0.0006
41733692.00		4.27e6				36.6327		36.6327

Stored in ASCII File: L:\data\tchrom\btex\varf\FF\_774.TX0

# Chromatogram

Sample Name : STD\_20

File Name : l:\data\tchrom\btex\varf\FF\_774.raw

Method : 601F.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 63.00 min

Plot Offset: -5 mV

Sample #: TC ;S;

Date : 05/23/95 02:00

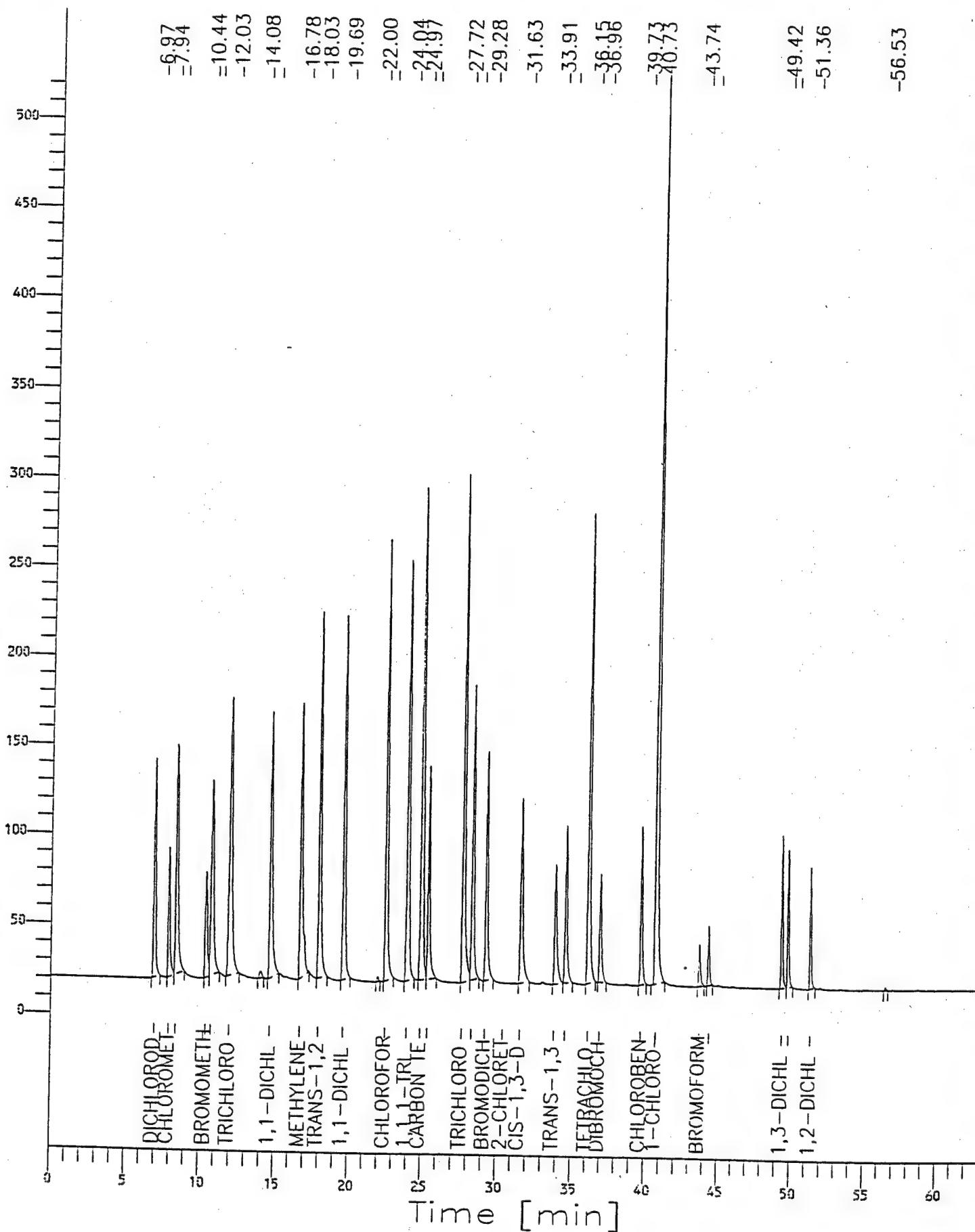
Time of Injection: 05/23/95 12:57

Low Point : -4.87 mV

Plot Scale: 530 mV

Page 1 of 1

High Point : 524.86 mV





=====  
Software Version: 3.2 <16C20>  
File Name : STD\_40 Time : 05/23/95 03:11  
Sample Number: TC ;S; Study : 8010S;1;PQL  
Operator : JZL  
Samplement : HP\_F Channel : B A/D mV Range : 10000  
Sampler : OTHER TYPE  
Vial : 0/0  
=====

=====  
Sample Serial # : 1092573379 Data Acquisition Time: 05/23/95 02:07  
Sample Time : 0.00 min.  
Inlet Time : 63.00 min.  
Sampling Rate : 1.0000 pts/sec  
=====

=====  
Data File : L:\data\tchrom\btex\varf\FF\_775.raw  
Result File : L:\data\tchrom\btex\varf\FF\_775.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\601F.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\601F.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\8010S522.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\8010S.seq  
=====

=====  
Injection Volume : 2 ul Area Reject : 300.00  
Sample Amount : 1.0000 Dilution Factor : 1.00  
=====

=====  
BTEX Area Percent Report  
=====

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L
6.945	2008525.00	241402.45	BB	16792.9941	0.4767	2.9901	Dichlorodifluorometh	2.9901
7.928	1138141.50	125454.48	BV	42368.0195	0.2701	0.6716	Chloromethane	0.6716
8.440	2706658.50	269680.78	VB	45970.3047	0.6424	1.4720	Vinyl Chloride	1.4720
10.420	1137808.75	117068.88	BV	24760.1426	0.2701	1.1488	Bromomethane	1.1488
10.813	2765451.25	218152.95	VB	57497.6680	0.6564	1.2024	Chloroethane	1.2024
12.020	3933630.00	285010.38	BB	74394.0313	0.9336	1.3219	Trichlorofluorometha	1.3219
14.076	44980.00	3511.01	BB	1.0000e6	-----	0.0011		0.0011
14.751	3293890.00	276600.16	BB	73964.4609	0.7818	1.1133	1,1-Dichloroethene	1.1133
16.775	2639150.00	250715.88	BB	81651.2422	0.6264	0.8081	Methylene Chloride	0.8081
18.025	3772675.00	373786.91	BB	82058.9453	0.8954	1.1494	trans-1,2-Dichlethen	1.1494
19.675	3702295.00	363250.06	BB	81807.3203	0.8787	1.1314	1,1-Dichloroethane	1.1314
21.975	46910.00	5601.37	BB	1.0000e6	-----	0.0012		0.0012
22.542	3896775.00	421242.00	BB	55779.2188	0.9249	1.7465	Chloroform	1.7465
24.005	4612260.00	431662.63	BB	96053.4141	1.0947	1.2004	1,1,1-Trichloroethan	1.2004
24.930	5197069.50	503806.06	BV	1.0662e5	1.2335	1.2186	Carbon Tetrachloride	1.2186
25.388	1717420.25	190974.48	VB	32774.7734	0.4076	1.3100	1,2-Dichloroethane	1.3100
27.666	4522198.50	484216.72	BV	93178.5703	1.0733	1.2133	Trichloroethene	1.2133
28.297	2658146.25	276362.84	VB	55418.3008	0.6309	1.1991	1,2-Dichloropropane	1.1991
29.219	2133550.00	216720.77	BB	35280.8398	0.5064	1.5118	Bromodichloromethane	1.5118
31.571	1906620.00	176268.53	BB	30413.2539	0.4525	1.5673	cis-1,3-Dichloroprop	1.5673
33.001	25900.00	2744.77	BB	1.0000e6	-----	0.0007		0.0007
33.856	1235790.50	113301.25	BV	21444.4141	0.2933	1.4407	trans-1,3-Dichloropr	1.4407
34.572	1375979.63	142317.17	VB	26143.4258	0.3266	1.3158	1,1,2-Trichloroethan	1.3158
36.121	4372116.50	456555.59	BV	89820.0156	1.0377	1.2169	Tetrachloroethene	1.2169
36.925	975253.38	99433.06	VB	19677.0703	0.2315	1.2391	Dibromochloromethane	1.2391
39.705	1308510.00	151869.95	BB	20079.3320	0.3106	1.6292	chlorobenzene	1.6292
40.698	4213250.00	478019.97	BB	-----	1.0000	0.0000	1-CHLORO-2-FLUOROB	0.0000
43.717	323269.88	37511.35	BB	8005.1079	0.0767	1.0096	Bromoform	1.0096
44.376	384170.00	49065.76	BB	8178.8975	0.0912	1.1743	1,1,2,2-Tetrachloroe	1.1743
49.419	1087170.63	154699.78	BV	30004.6055	0.2580	0.9058	1,3-Dichlorobenzene	0.9058
49.847	931659.38	137049.95	VB	24192.6406	0.2211	0.9628	1,4-Dichlorobenzene	0.9628
51.353	791589.94	115420.74	BB	16425.4863	0.1879	1.2048	1,2-Dichlorobenzene	1.2048
70858808.00		7.16e6				36.0779		36.0779

=====  
Stored in ASCII File: L:\data\tchrom\btex\varf\FF\_775.TX0  
=====



# Chromatogram

Sample Name : STD\_40

FileName : l:\data\tchrom\btex\varf\FF\_775.raw

Method : 601F.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 63.00 min

Plot Offset: -5 mV

Sample #: TC ;S;

Date : 05/23/95 03:11

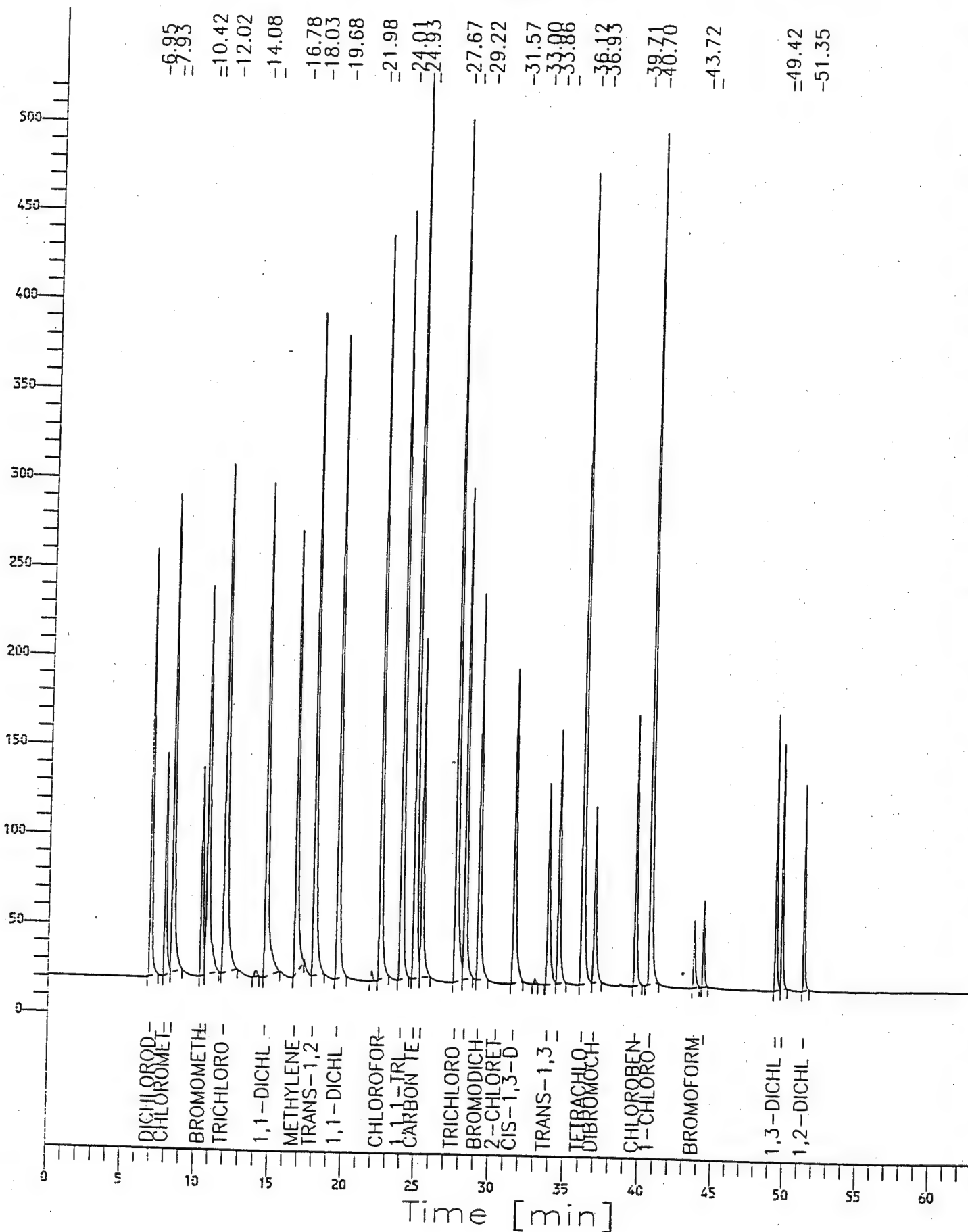
Time of Injection: 05/23/95 02:07

Low Point : -4.95 mV

Plot Scale: 531 mV

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High Point : 526.25 mV



=====

Version: 3.2 <16C20>  
Name : STD\_60 Time : 05/23/95 04:20  
Number: TC ;S; Study : 8010S;1;PQL  
itor : JZL

nt : HP\_F Channel : B A/D mV Range : 10000  
ler : OTHER TYPE  
Vial : 0/0

=====

Serial # : 1092573379 Data Acquisition Time: 05/23/95 03:17  
me : 0.00 min.  
me : 63.00 min.  
ing Rate : 1.0000 pts/sec

=====

File : L:\data\tchrom\btex\varf\FF\_776.raw  
ile : L:\data\tchrom\btex\varf\FF\_776.rst  
ment File: L:\DATA\TCHROM\BTEX\METHODS\601F.ins  
ss File : L:\DATA\TCHROM\BTEX\METHODS\601F.prc  
le file : L:\DATA\TCHROM\BTEX\METHODS\8010S522.smp  
File : L:\DATA\TCHROM\BTEX\METHODS\8010S.seq

=====

Volume : 2 ul Area Reject : 300.00  
le Amount : 1.0000 Dilution Factor : 1.00

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BTEX Area Percent Report

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Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/L	Component Name	RAW AMOUNT ug/L
6.953	3014525.00	336700.59	BB	17746.6270	0.6770	2.8311	Dichlorodifluorometh	2.8311
9.934	1726689.88	188845.50	BV	44773.9883	0.3878	0.6427	Chloromethane	0.6427
10.448	4095170.00	391100.66	VB	48580.8398	0.9197	1.4049	Vinyl Chloride	1.4049
10.432	1732708.13	175675.66	BV	26166.2070	0.3892	1.1037	Bromomethane	1.1037
10.823	3877711.75	312375.63	VB	60762.8164	0.8709	1.0636	Chloroethane	1.0636
10.027	5542720.00	407869.50	BB	78618.6953	1.2449	1.1750	Trichlorofluorometha	1.1750
10.079	60945.00	4310.70	BB	1.0000e6	-----	0.0010		0.0010
10.750	4708260.00	400188.72	BB	78164.7188	1.0574	1.0039	1,1-Dichloroethene	1.0039
16.766	3848051.25	356747.97	BE	54868.5469	0.8642	1.1689	Methylene Chloride	1.1689
17.352	291060.00	14819.88	EV	1.0000e6	-----	0.0049		0.0049
17.011	5639198.50	546862.44	VB	86718.8750	1.2665	1.0838	trans-1,2-Dichlethen	1.0838
17.656	5476970.00	534950.88	BB	86452.9531	1.2301	1.0559	1,1-Dichloroethane	1.0559
21.952	77515.00	9116.46	BB	1.0000e6	-----	0.0013		0.0013
22.521	6024840.00	622682.50	BB	58946.7773	1.3531	1.7035	Chloroform	1.7035
22.989	6929870.00	633225.31	BB	1.0150e5	1.5564	1.1378	1,1,1-Trichloroethan	1.1378
23.918	7723500.00	744714.06	BV	1.1267e5	1.7346	1.1424	Carbon Tetrachloride	1.1424
23.375	2684580.00	296567.72	VB	34635.9727	0.6029	1.2918	1,2-Dichloroethane	1.2918
27.658	6724703.50	720184.69	BV	98469.9453	1.5103	1.1382	Trichloroethene	1.1382
28.288	4022636.25	416887.50	VB	58565.3750	0.9035	1.1448	1,2-Dichloropropane	1.1448
28.207	3272835.00	330157.00	BB	37284.3516	0.7351	1.4630	Bromodichloromethane	1.4630
28.553	2881565.00	270762.81	BB	32140.3496	0.6472	1.4943	cis-1,3-Dichloroprop	1.4943
32.981	44675.00	4654.45	BB	1.0000e6	-----	0.0007		0.0007
33.835	1884480.00	175802.30	BV	22662.1914	0.4232	1.3859	trans-1,3-Dichloropr	1.3859
33.554	2114980.00	219026.98	VB	27628.0449	0.4750	1.2759	1,1,2-Trichloroethan	1.2759
33.109	6450266.00	660069.63	BV	94920.6797	1.4487	1.1326	Tetrachloroethene	1.1326
36.918	1550878.75	156384.52	VB	20794.4805	0.3483	1.2430	Dibromochloromethane	1.2430
38.707	17140.00	2076.57	BB	1.0000e6	-----	0.0003		0.0003
38.718	2015070.13	234288.92	BB	21219.5879	0.4526	1.5827	chlorobenzene	1.5827
38.718	4452510.00	507178.50	BB	-----	1.0000	0.0000	1-CHLORO-2-FLUOROB	0.0000
38.737	533237.88	59123.03	BV	8459.6992	0.1198	1.0506	Bromoform	1.0506
38.397	584282.00	74372.27	VB	8643.3565	0.1312	1.1267	1,1,2,2-Tetrachloroe	1.1267
39.412	1610903.38	229577.83	BV	31708.4941	0.3618	0.8467	1,3-Dichlorobenzene	0.8467
39.837	1417836.50	209430.56	VB	25566.4824	0.3184	0.9243	1,4-Dichlorobenzene	0.9243
39.333	1226850.13	178257.98	BB	17358.2481	0.2755	1.1780	1,2-Dichlorobenzene	1.1780
1.04e8					34.8037		34.8037	

=====

Stored in ASCII File: L:\data\tchrom\btex\varf\FF\_776.TX0

# Chromatogram

Sample Name : STD\_60

File Name : l:\data\tchrom\btext\varf\FF\_776.raw

Method : 601F.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 63.00 min

Plot Offset: -17 mV

Sample #: TC ;S;

Date : 05/23/95 04:21

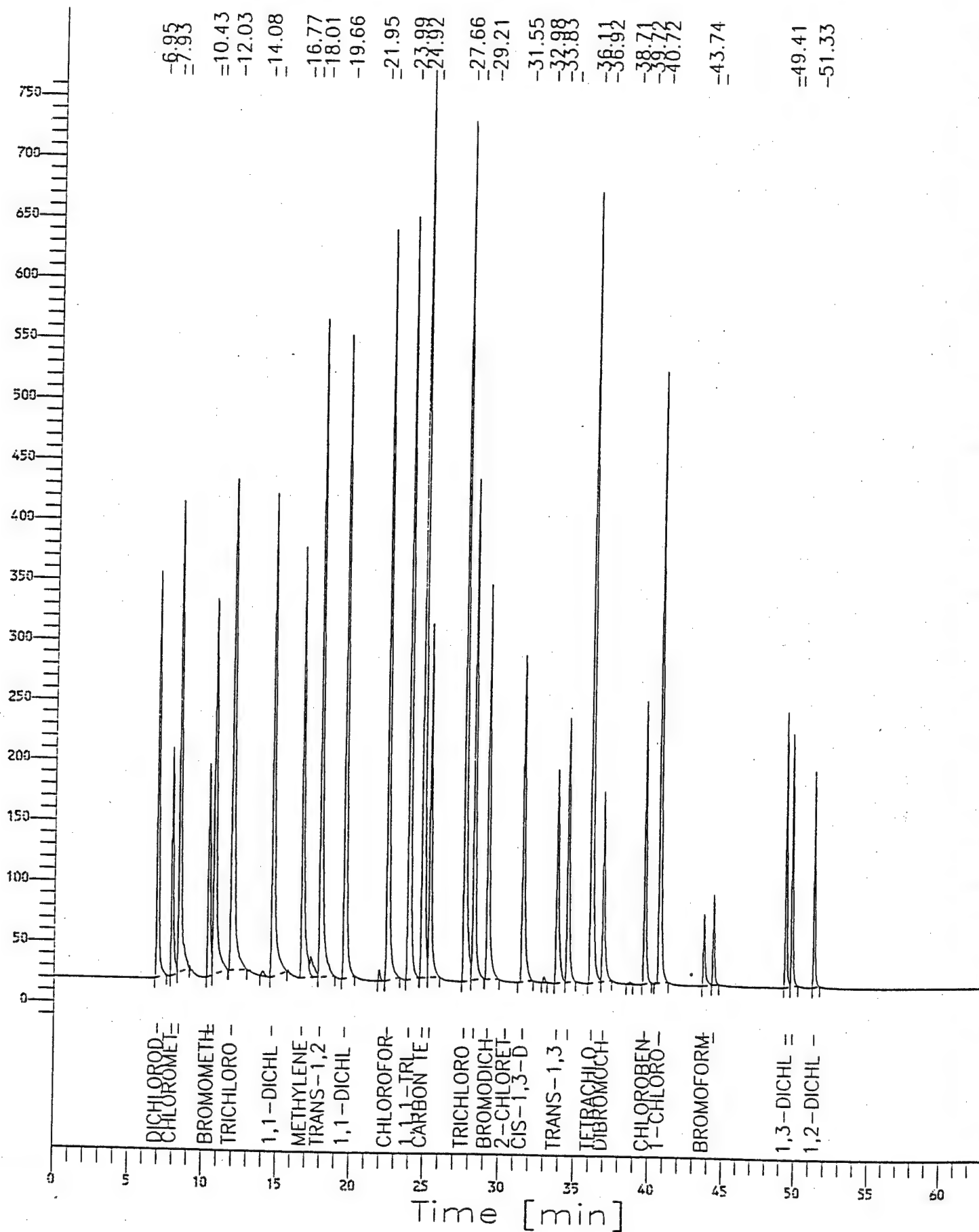
Time of Injection: 05/23/95 03:17

Low Point : -17.09 mV

Plot Scale: 786 mV

Page 1 of 1

High Point : 768.88 mV



Software Version: 3.2 <16C20>  
File Name : STD\_80  
Sample Number: TC ;S;  
Generator : JZL  
Time : 05/23/95 05:30  
Study : 8010S;1;PQL  
Instrument : HP\_F  
Channel : 8 A/D mV Range : 10000  
Amplifier : OTHER TYPE  
Vial : 0/0

Interface Serial # : 1092573379 Data Acquisition Time: 05/23/95 04:27  
Time : 0.00 min.  
Time : 63.00 min.  
Sampling Rate : 1.0000 pts/sec

Raw Data File : L:\data\tchrom\btex\varf\FF\_777.raw  
List File : L:\data\tchrom\btex\varf\FF\_777.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\601F.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\601F.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\8010S522.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\8010S.seq

Volume : 2 ul  
Sample Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

### BTEX Area Percent Report

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L
6.937	3585190.00	444028.94	BB	14737.5000	0.9696	3.0409	Dichlorodifluorometh	3.0409
7.919	1974127.75	224696.52	BV	37182.0898	0.5339	0.6637	Chloromethane	0.6637
8.424	5129597.00	512954.28	VB	40343.4492	1.3873	1.5894	Vinyl Chloride	1.5894
10.401	2016137.13	209470.41	BV	21729.4512	0.5453	1.1598	Bromomethane	1.1598
10.790	4971038.00	399809.44	VB	50459.8359	1.3444	1.2314	Chloroethane	1.2314
12.000	7270320.00	512396.53	BB	65288.0625	1.9663	1.3920	Trichlorofluorometha	1.3920
14.043	56810.00	3767.15	BB	1.0000e6	-----	0.0007		0.0007
14.721	5976335.00	492886.22	BB	64911.0664	1.6163	1.1509	1,1-Dichloroethene	1.1509
16.743	4312050.00	377335.34	BB	36501.9766	1.1662	1.4767	Methylene Chloride	1.4767
17.997	6480380.00	631280.81	BB	72014.7813	1.7526	1.1248	trans-1,2-Dichlethen	1.1248
19.646	6098400.00	582290.31	BB	71793.9531	1.6493	1.0618	1,1-Dichloroethane	1.0618
21.942	83770.00	10045.78	BB	1.0000e6	-----	0.0011		0.0011
22.510	6504415.00	682425.94	BB	48951.7305	1.7591	1.6609	Chloroform	1.6609
23.976	8241180.00	752065.13	BB	84296.2891	2.2288	1.2221	1,1,1-Trichloroethan	1.2221
24.904	9205720.00	876056.56	BV	93573.4063	2.4897	1.2298	Carbon Tetrachloride	1.2298
25.360	2804749.25	297733.75	VB	28763.0781	0.7585	1.2189	1,2-Dichloroethane	1.2189
27.643	8062941.00	851126.56	BV	81773.3281	2.1806	1.2325	Trichloroethene	1.2325
28.277	4439709.00	447496.28	VB	48634.9922	1.2007	1.1411	1,2-Dichloropropane	1.1411
29.200	3470680.00	349890.22	BB	30962.3965	0.9387	1.4012	Bromodichloromethane	1.4012
31.559	2996240.00	280638.66	BB	26690.6133	0.8103	1.4032	cis-1,3-Dichloroprop	1.4032
32.995	58620.00	5996.75	BB	1.0000e6	-----	0.0007		0.0007
33.853	1851050.88	173286.47	BV	18819.5781	0.5006	1.2295	trans-1,3-Dichloropr	1.2295
34.573	2019124.25	211440.27	VB	22943.4199	0.5461	1.1001	1,1,2-Trichloroethan	1.1001
36.130	7505317.50	765799.31	BV	78825.8750	2.0298	1.1902	Tetrachloroethene	1.1902
36.935	1457057.13	146142.70	VB	17268.5606	0.3941	1.0547	Dibromochloromethane	1.0547
39.719	2121605.00	245987.89	BB	17621.5820	0.5738	1.5050	chlorobenzene	1.5050
40.714	3697540.00	426109.22	BB	-----	1.0000	0.0000	1-CHLORO-2-FLUOROB	0.0000
43.712	448915.16	52556.94	BB	7025.2681	0.1214	0.7988	Bromoform	0.7988
44.371	485280.00	62410.22	BB	7177.7837	0.1312	0.8451	1,1,2,2-Tetrachloroe	0.8451
49.391	1544705.88	218181.86	BV	26331.9844	0.4178	0.7333	1,3-Dichlorobenzene	0.7333
49.817	1320313.88	194605.94	VB	21231.4141	0.3571	0.7773	1,4-Dichlorobenzene	0.7773
51.316	1081689.88	157682.14	BB	14414.9756	0.2925	0.9380	1,2-Dichlorobenzene	0.9380
1.17e8		1.15e7		34.5752		34.5752		

Stored in ASCII File: L:\data\tchrom\btex\varf\FF\_777.TX0

# Chromatogram

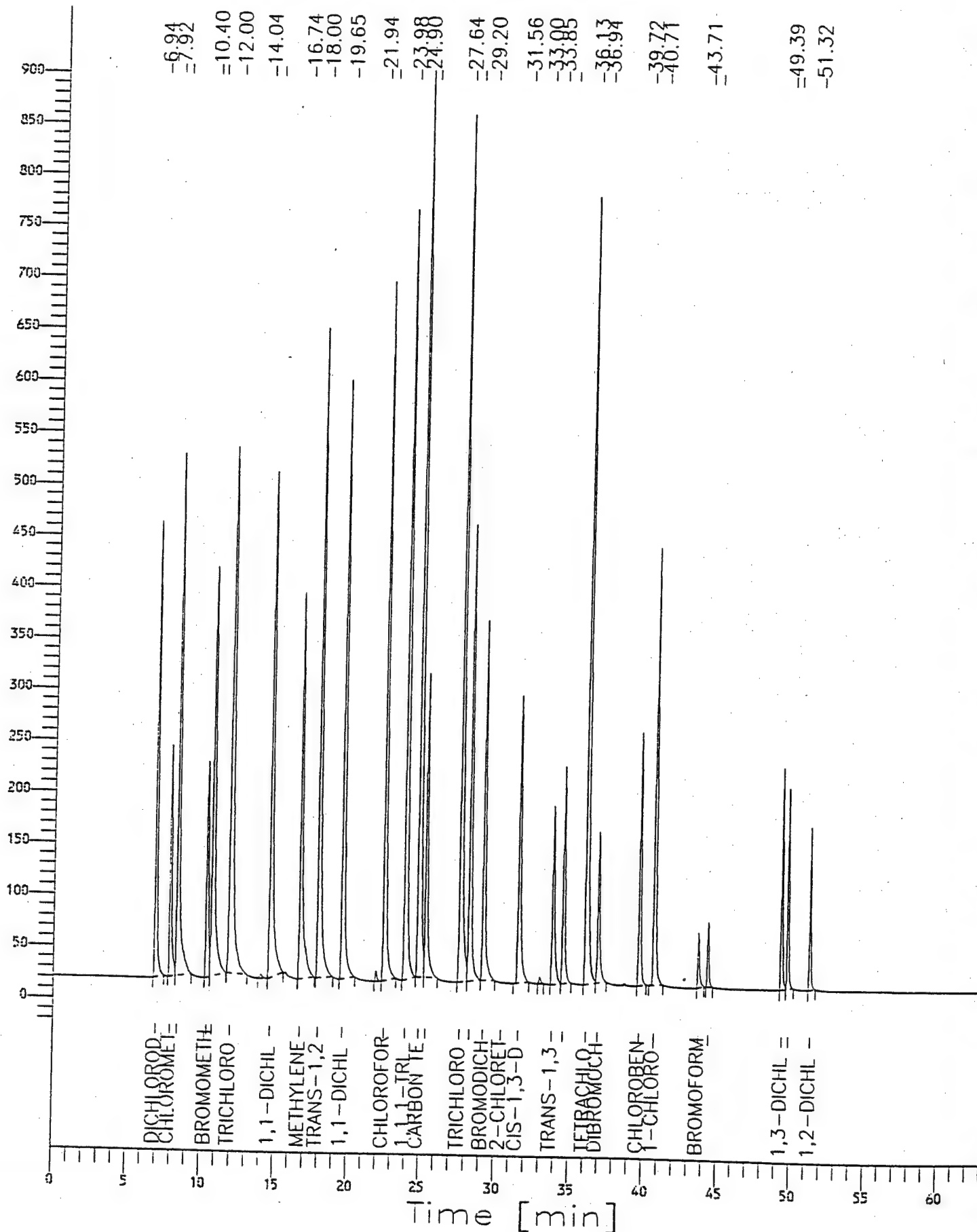
Sample Name : STD\_80  
 FileName : l:\data\tchrom\btex\varf\FF\_777.raw  
 Method : 601F.ins  
 Start Time : 0.00 min  
 Scale Factor : 1

End Time : 63.00 min  
 Plot Offset : -24 mV

Sample #: TC ;S;  
 Date : 05/23/95 05:31  
 Time of Injection: 05/23/95 04:27  
 Low Point : -23.61 mV  
 Plot Scale: 924 mV  
 High Point : 900.04 mV

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Response [mV]



Software Version: 3.2 <16C20>  
Sample Name : STD\_100  
Sample Number: TC ;S;  
Operator : JZL  
Time : 05/23/95 06:40  
Study : 8010S;1;PQL

Instrument : HP\_F  
Sampler : OTHER TYPE  
Inlet/Vial : 0/0  
Channel : B A/D mV Range : 10000

Interface Serial # : 1092573379 Data Acquisition Time: 05/23/95 05:37  
Delay Time : 0.00 min.  
Time : 63.00 min.  
Sampling Rate : 1.0000 pts/sec

Data File : l:\data\tchchrom\btex\varf\FF\_778.raw  
Data File : l:\data\tchchrom\btex\varf\FF\_778.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\601F.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\601F.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\8010S522.smp  
Reference File : L:\DATA\TCHROM\BTEX\METHODS\8010S.seq

Volume : 2 ul  
Sample Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00

BTEX Area Percent Report

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L
6.946	4538285.00	521125.81	BB	17898.6621	1.0106	2.5355	Dichlorodifluorometh	2.5355
7.921	2742510.50	324132.41	BV	45157.5742	0.6107	0.6073	Chloromethane	0.6073
8.434	6211549.50	593781.38	VB	48997.0352	1.3832	1.2677	Vinyl Chloride	1.2677
10.412	2831687.50	287414.75	BV	26390.3770	0.6306	1.0730	Bromomethane	1.0730
10.801	6623132.50	498939.03	VB	61283.3711	1.4749	1.0807	Chloroethane	1.0807
12.002	9286430.00	646033.69	BB	79292.2188	2.0680	1.1712	Trichlorofluorometha	1.1712
14.048	50980.04	3914.66	BB	1.0000e6	-----	0.0005		0.0005
14.716	6939304.50	623066.19	BB	78834.3672	1.5453	0.8802	1,1-Dichloroethene	0.8802
15.740	24714.84	3655.46	BB	1.0000e6	-----	0.0003		0.0003
16.738	6509183.50	560778.69	BV	39892.7656	1.4495	1.6317	Methylene Chloride	1.6317
17.984	9033516.00	853369.50	VB	87461.7969	2.0116	1.0329	trans-1,2-Dichlethen	1.0329
19.632	8800640.00	832694.94	BB	87193.6094	1.9598	1.0093	1,1-Dichloroethane	1.0093
21.938	132360.00	15430.40	BB	1.0000e6	-----	0.0013		0.0013
22.511	9590860.00	974742.19	BB	59451.7891	2.1357	1.6132	Chloroform	1.6132
23.987	10888040.00	958077.50	BB	1.0237e5	2.4246	1.0635	1,1,1-Trichloroethan	1.0635
24.923	11902950.00	1.11e6	BV	1.1364e5	2.6506	1.0474	Carbon Tetrachloride	1.0474
25.381	4613210.00	476495.69	VB	34932.7031	1.0273	1.3206	1,2-Dichloroethane	1.3206
27.673	10473555.00	1.11e6	BV	99313.5391	2.3323	1.0546	Trichloroethene	1.0546
28.309	6440764.50	638854.00	VB	59067.1055	1.4343	1.0904	1,2-Dichloropropane	1.0904
29.230	5229240.00	521309.03	BB	37603.7695	1.1645	1.3906	Bromodichloromethane	1.3906
31.582	4539200.00	426264.22	BB	32415.6953	1.0108	1.4003	cis-1,3-Dichloroprop	1.4003
33.010	81450.00	8186.67	BB	1.0000e6	-----	0.0008		0.0008
33.853	3011490.25	288230.59	BV	22856.3398	0.6706	1.3176	trans-1,3-Dichloropr	1.3176
34.570	3368389.75	352447.69	VB	27864.7363	0.7501	1.2088	1,1,2-Trichloroethan	1.2088
36.112	9900765.00	1.00e6	BV	95733.8594	2.2048	1.0342	Tetrachloroethene	1.0342
36.915	2465895.25	251229.08	VB	20972.6309	0.5491	1.1758	Dibromochloromethane	1.1758
38.687	32640.00	4034.48	BB	1.0000e6	-----	0.0003		0.0003
39.694	3228780.00	372302.03	BB	21401.3750	0.7190	1.5087	chlorobenzene	1.5087
40.419	16534.92	2446.71	BV	9.9999e5	-----	0.0002		0.0002
40.689	4490655.00	516181.88	VB	-----	1.0000	0.0000	1-CHLORO-2-FLUOROB	0.0000
43.692	873541.25	96709.63	BV	8532.1729	0.1945	1.0238	Bromoform	1.0238
44.352	956419.00	120345.29	VB	8717.4053	0.2130	1.0971	1,1,2,2-Tetrachloroe	1.0971
49.382	2636333.50	364431.78	BV	31980.1406	0.5871	0.8244	1,3-Dichlorobenzene	0.8244
49.809	2342509.75	334336.28	VB	25785.5137	0.5216	0.9085	1,4-Dichlorobenzene	0.9085
51.311	2026050.00	286890.91	BB	17506.9590	0.4512	1.1573	1,2-Dichlorobenzene	1.1573
	1.62e8	1.59e7				33.5297		33.5297

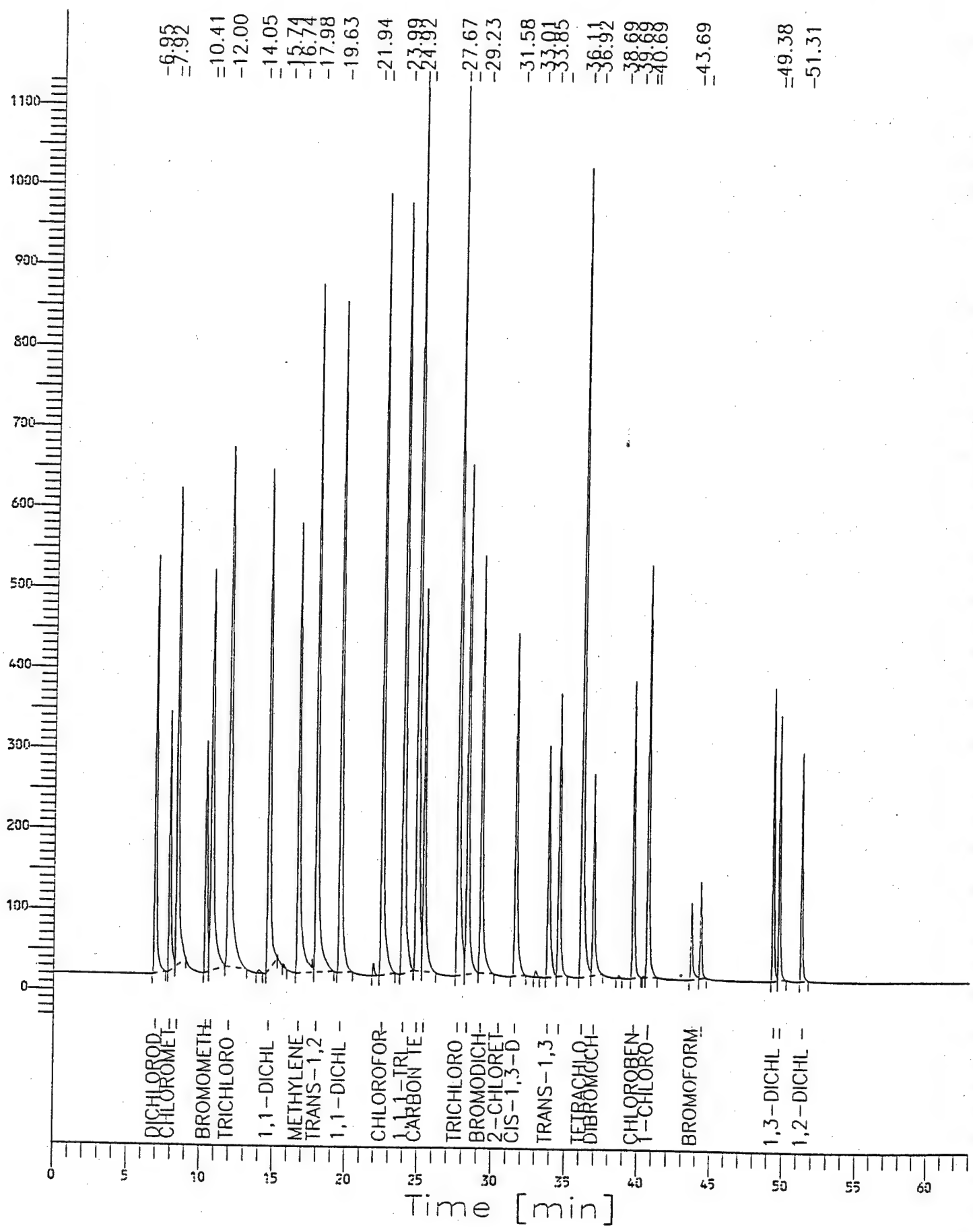
rt Stored in ASCII File: l:\data\tchchrom\btex\varf\FF\_778.TX0

Sample Name : STD\_100  
File Name : l:\data\tchrom\btext\varf\FF\_778.raw  
Method : 601F.ins  
Start Time : 0.00 min  
Scale Factor : 1

End Time : 63.00 min  
Plot Offset: -35 mV

Sample #: TC ;S;  
Date : 05/23/95 06:41  
Time of Injection: 05/23/95 05:37  
Low Point : -35.42 mV  
Plot Scale: 1171 mV

Page 1 of 1  
High Point : 1135.73 mV



```

=====
File Version: 3.2 <16C20>
File Name : STD-50           Time       : 05/28/95  08:20
Sample Number: TC ;W;1       Study      : 8602MW;1
Sample      : YN
Inlet       : HP_J           Channel    : A      A/D mV Range : 1000
Sampler     : NONE
Injection   : 0/0

```

```

Trace Serial # : 1092573380   Data Acquisition Time: 05/28/95  08:03
Time          : 0.00 min.
Time          : 17.33 min.
Loop Rate     : 2.0000 pts/sec

```

```

Data File : l:\data\tchrom\btex\varj\J__400.raw
Out File  : l:\data\tchrom\btex\varj\J__400.rst
Report File: L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
Base File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

Volume      : 2 ul           Area Reject : 300.00
Amount      : 1.0000        Dilution Factor : 1.00

```

=====

BTEX Area Percent Report

=====

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.697	55918.50	8725.98	BB	1021.9927	0.2115	54.7152	MTBE	54.7152	-0.0514
3.244	72157.00	10709.26	BV	1245.5204	0.2730	57.9332	Isopropylether	57.9332	-0.0503
3.818	4202.50	668.98	VB	1.0000e6	-----	0.0042		0.0042	0.0000
4.601	139825.63	28378.10	BV	2493.2437	0.5289	56.0818	Benzene	56.0818	-0.0404
4.913	123039.39	24687.43	VB	1086.5527	0.4654	113.2383	1,4-DIFLUOROBENZENE	113.2383	-0.0365
5.589	264351.00	57207.93	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0329
6.787	125028.50	30813.12	BB	2294.6502	0.4730	54.4870	Toluene	54.4870	-0.0262
8.470	95637.50	25589.89	BV	1716.6903	0.3618	55.7104	Ethyl_Benzene	55.7104	-0.0194
8.693	210011.50	53051.70	VB	1827.5897	0.7944	114.9117	m and p Xylene	114.9117	-0.0192
9.087	95746.02	26081.95	BB	1746.8857	0.3622	54.8096	o-Xylene	54.8096	-0.0191
9.487	161386.50	38233.21	BB	1429.9662	0.6105	112.8604	4-BROMOFLUOROBENZENE	112.8604	-0.0151
1347304.00		304147.56				674.7517		674.7517	-0.3106

Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_400.TX0



# Chromatogram

File Name : STD-50

Sample Name : l:\data\tchrom\btex\varj\J\_400.raw

Method : HP\_J.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 17.33 min

Plot Offset: 2 mV

Sample #: TC ;W:1

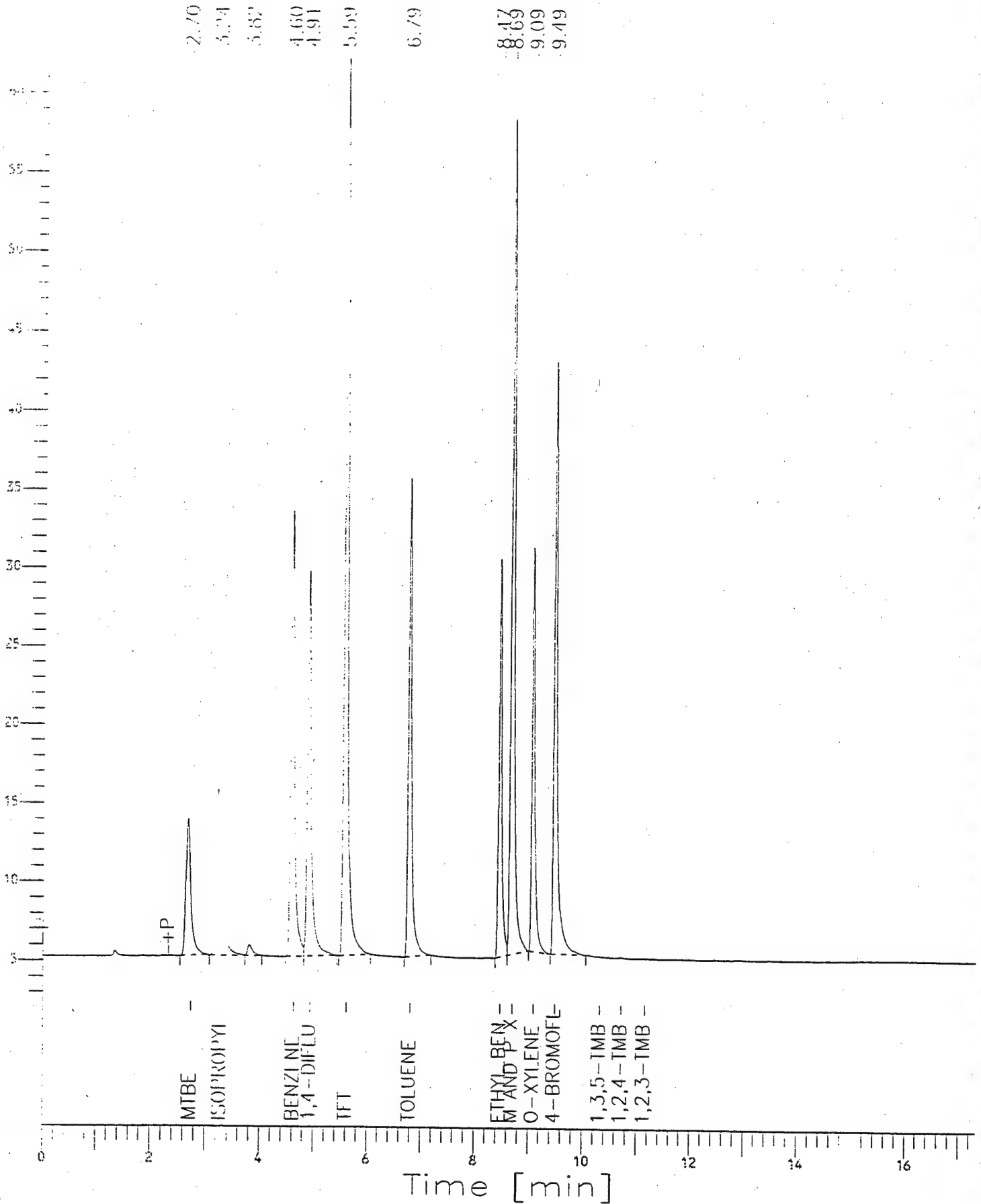
Date : 05/28/95 08:20

Time of Injection: 05/28/95 08:03

Low Point : 2.41 mV

Plot Scale: 60 mV

Page 1 of 1



```

=====
Software Version: 3.2 <16C20>
File Name : LCS-50
Sample Number: TL ;W;1
Inlet : YN

Inlet : HP_J
Sampler : NONE
Injection : 0/0

Channel : A A/D mV Range : 1000
  
```

```

Trace Serial # : 1092573380 Data Acquisition Time: 05/28/95 07:37
Injection Time : 0.00 min.
Sample Time : 17.33 min.
Sampling Rate : 2.0000 pts/sec
  
```

```

Data File : l:\data\tchrom\btex\varj\J___399.raw
Result File : l:\data\tchrom\btex\varj\J___399.rst
Statement File: L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
Analysis File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Reference File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq
  
```

```

Injection Volume : 2 ul
Injection Amount : 1.0000
Area Reject : 300.00
Dilution Factor : 1.00
  
```

BTEX Area Percent Report

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/L	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.699	37937.00	5868.10	BB	1031.8569	0.1421	36.7658	MTBE	36.7658	-0.0494
3.244	6094.01	940.66	BB	1257.5420	0.0228	4.8460	Isopropylether	4.8460	-0.0507
3.820	3829.75	641.42	BB	1.0000e6	-----	0.0038		0.0038	0.0000
4.604	92715.31	18769.38	BV	2517.3084	0.3474	36.8311	Benzene	36.8311	-0.0379
4.916	123060.69	24952.81	VB	1097.0400	0.4611	112.1752	1,4-DIFLUOROBENZENE	112.1752	-0.0341
5.591	266902.50	58409.18	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0308
6.788	90903.75	22535.34	BB	2316.7981	0.3406	39.2368	Toluene	39.2368	-0.0248
8.470	73551.29	19909.93	BV	1733.2599	0.2756	42.4352	Ethyl_Benzene	42.4352	-0.0191
8.694	173290.45	44531.80	VB	1845.2295	0.6493	93.9127	m and p Xylene	93.9127	-0.0183
9.087	76867.00	21253.35	BB	1763.7466	0.2880	43.5817	o-Xylene	43.5817	-0.0189
9.486	169362.14	41332.08	BV	1443.7682	0.6346	117.3056	4-BROMOFLUOROBENZENE	117.3056	-0.0158
9.961	2875.53	594.66	VV	1.0000e6	-----	0.0029		0.0029	0.0000
10.118	4337.46	646.98	VV	1.0000e6	-----	0.0043		0.0043	0.0000
10.320	2296.91	642.91	VV	1666.2433	0.0086	1.3785	1,3,5-TMB	1.3785	-0.0205
10.417	1906.95	489.47	VB	1.0000e6	-----	0.0019		0.0019	0.0000
10.714	7023.75	1808.07	BB	1475.5918	0.0263	4.7600	1,2,4-TMB	4.7600	-0.0201
11.142	1071.50	361.86	BB	1415.3743	0.0040	0.7570	1,2,3-TMB	0.7570	-0.0196
11.261	1596.50	553.10	BB	1.0000e6	-----	0.0016		0.0016	0.0000
11.953	1509.00	280.92	BB	1.0000e6	-----	0.0015		0.0015	0.0000
1137131.50						534.0015		534.0015	-0.3600

Report Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_\_399.TX0

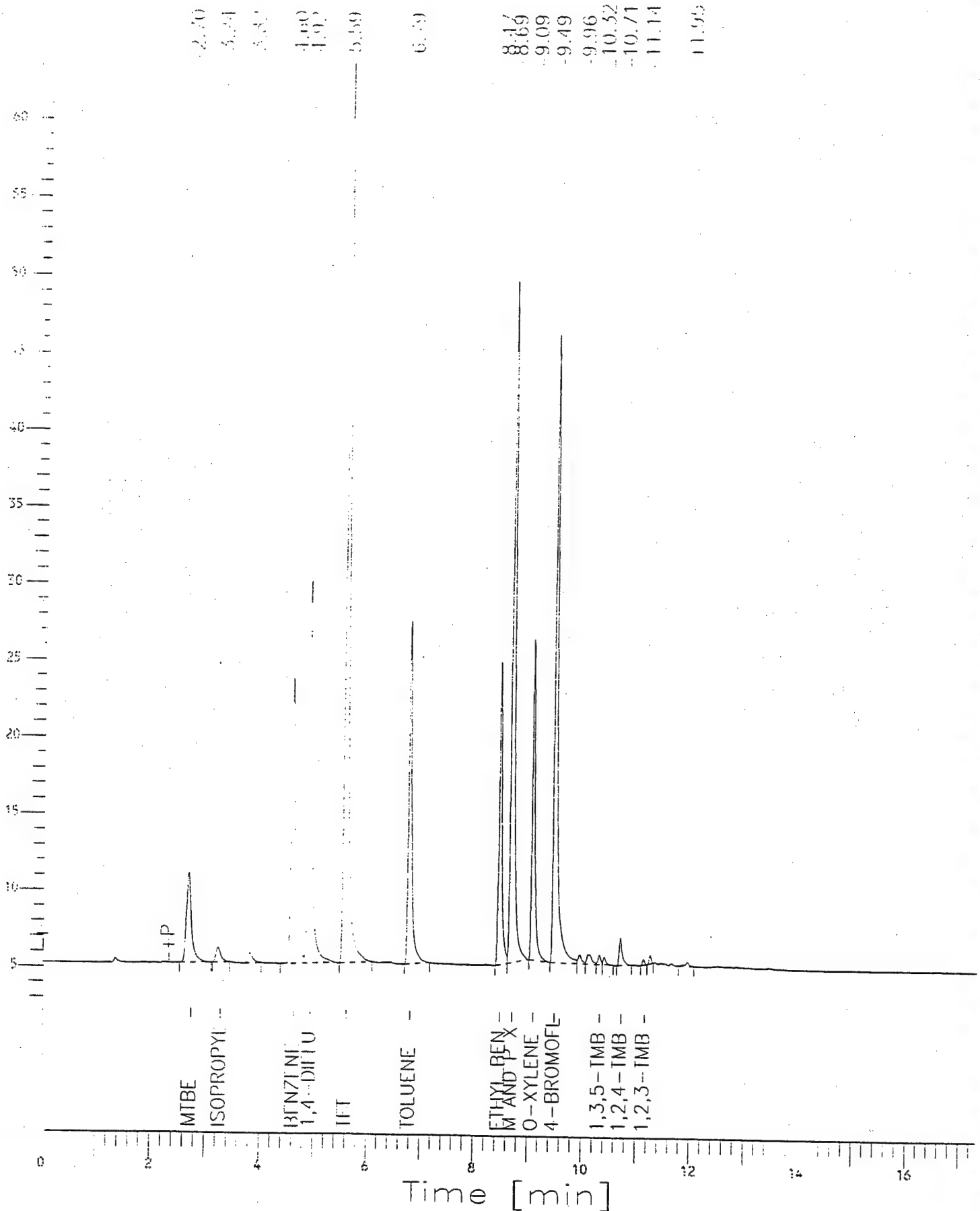
# Chromatogram

Sample Name : LCS-50  
 File Name : l:\data\tchrom\btex\varj\J\_\_\_399.raw  
 Method : HP\_J.ins  
 Start Time : 0.00 min  
 Scale Factor: 1

End Time : 17.33 min  
 Plot Offset: 2 mV

Sample #: TL ;W;1  
 Date : 05/28/95 07:55  
 Time of Injection: 05/28/95 07:37  
 Low Point : 2.33 mV  
 High Point : 65.80 mV  
 Plot Scale: 62 mV

Page 1 of 1



Software Version: 3.2 <16C20>  
 Sample Name : 9505884-03A MS Time : 05/28/95 19:11  
 Sample Number: KM ;W;1 Study : B602MW;1  
 Sample : YN  
 Instrument : HP\_J Channel : A A/D mV Range : 1000  
 Sampler : NONE  
 Scan Rate : 0/0

Trace Serial # : 1092573380 Data Acquisition Time: 05/28/95 18:53  
 Run Time : 0.00 min.  
 Total Time : 17.33 min.  
 Scan Rate : 2.0000 pts/sec

Data File : L:\data\tchrom\btex\varj\J\_\_\_424.raw  
 Alt File : L:\data\tchrom\btex\varj\J\_\_\_424.rst  
 Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
 Sample File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc  
 Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
 Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

Sample Volume : 2 ul Area Reject : 300.00  
 Sample Amount : 1.0000 Dilution Factor : 1.00

# BTEX Area Percent Report

Ret Time [min]	Area [uV-sec]	Height [uV]	SL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.700	106862.55	16325.88	BV	1045.7632	0.3951	102.1862	MTBE	102.1862	-0.0482
3.249	28253.72	4189.49	VB	1274.4896	0.1045	22.1687	Isopropylether	22.1687	-0.0455
4.606	57445.12	11225.53	BV	2551.2334	0.2124	22.5166	Benzene	22.5166	-0.0357
5.918	122309.38	24558.86	VB	1111.8246	0.4522	110.0078	1,4-DIFLUOROBENZENE	110.0078	-0.0321
6.593	270499.50	57557.09	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0291
6.792	49004.00	11750.00	BB	2348.0212	0.1812	20.8703	Toluene	20.8703	-0.0212
8.474	37037.17	9407.15	BV	1756.6185	0.1369	21.0844	Ethyl_Benzene	21.0844	-0.0146
9.697	80135.82	19090.15	VB	1870.0974	0.2963	42.8512	m and p Xylene	42.8512	-0.0146
9.092	36758.01	9594.93	BB	1787.5160	0.1359	20.5637	o-Xylene	20.5637	-0.0143
9.492	158280.00	35991.18	BB	1463.2257	0.5851	108.1720	4-BROMOFLUOROBENZENE	108.1720	-0.0105
11.268	1253.25	329.81	BB	1434.4489	0.0046	0.8737	1,2,3-TMB	0.8737	0.1066
947838.50		200020.06				471.2944		471.2944	-0.1591

Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_\_424.TX0

## Chromatogram

Sample Name : 9505884-03A MS

File Name : l:\data\tchrom\btext\varj\J\_424.raw

Method : HP J.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 17.33 min

Plot Offset : 2 mV

Sample #: KM ;W:1

Date : 05/28/95 19:11

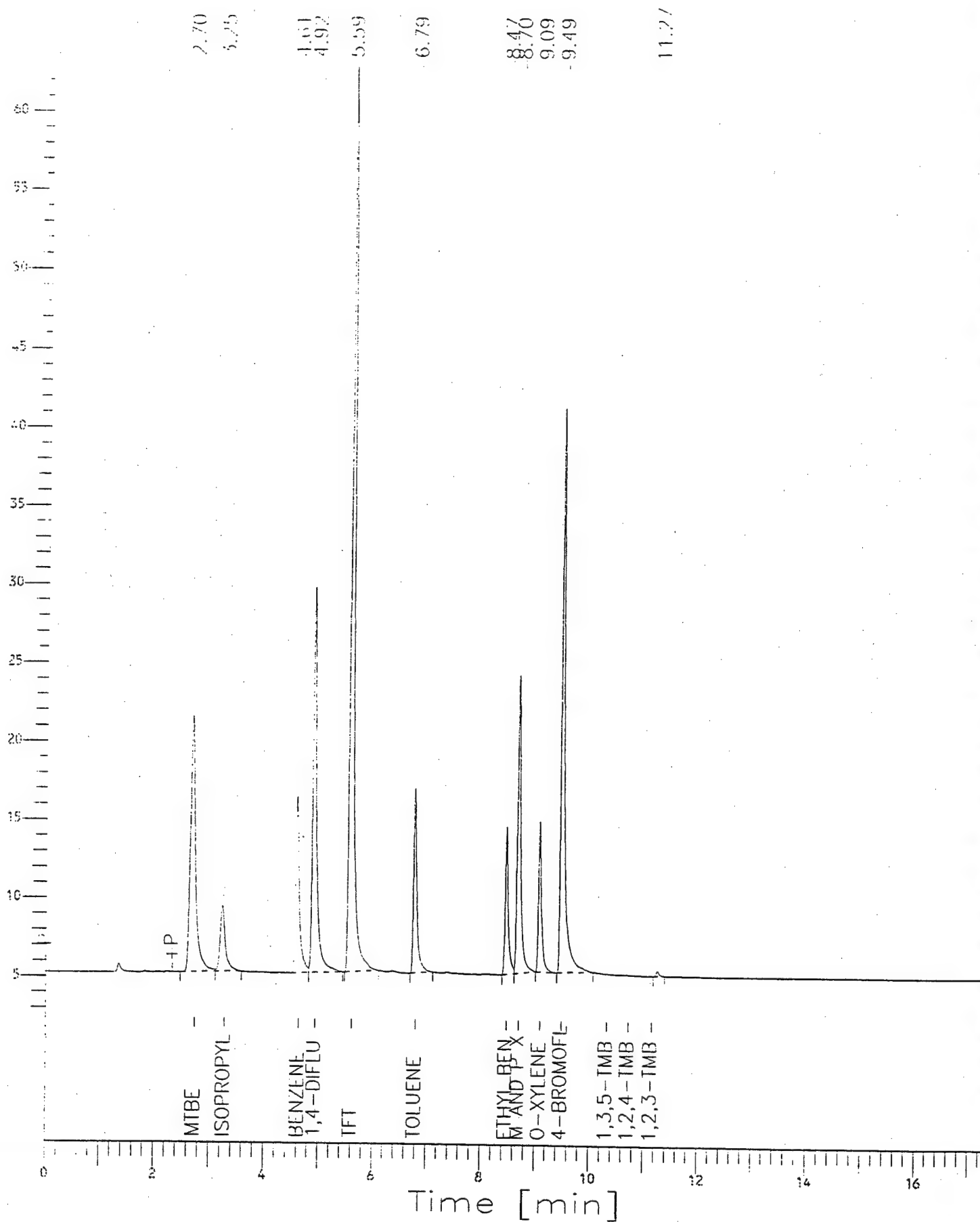
Time of Injection: 05/28/95 18:53

Low Point : 2.38 mV

Plot Scale: 61 mV

Page 1 of 1

High Point : 62.91 mV



=====  
ware Version: 3.2 <16C20>  
le Name : 9505884-03A MSD                      Time : 05/28/95 19:37  
Number: KMD;W;1                                Study : B602MW;1  
r : YN  
  
rument : HP\_J                                    Channel : A            A/D mV Range : 1000  
Sampler : NONE  
k : 0/0

=====  
rface Serial # : 1092573380    Data Acquisition Time: 05/28/95 19:19  
y Time : 0.00 min.  
ne : 17.33 min.  
p : 2.0000 pts/sec

=====  
Data File : l:\data\tchrom\btex\varj\J\_\_425.raw  
ult File : l:\data\tchrom\btex\varj\J\_\_425.rst  
ment File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
s File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc  
le File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
ence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq  
  
lume : 2 ul                                    Area Reject : 300.00  
le Amount : 1.0000                            Dilution Factor : 1.00

=====  
BTEX Area Percent Report  
=====

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.700	104595.05	16011.13	BV	1031.8068	0.3919	101.3708	MTBE	101.3708	-0.0480
3.249	28329.97	4200.91	VB	1257.4807	0.1062	22.5292	Isopropylether	22.5292	-0.0449
4.606	56727.13	11070.18	BV	2517.1856	0.2126	22.5359	Benzene	22.5359	-0.0357
4.918	121158.38	24351.38	VB	1096.9867	0.4540	110.4465	1,4-DIFLUOROBENZENE	110.4465	-0.0323
5.592	266889.50	56634.87	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0296
6.791	48070.50	11489.03	BB	2316.6853	0.1801	20.7497	Toluene	20.7497	-0.0218
8.474	35949.71	8966.48	BV	1733.1754	0.1347	20.7421	Ethyl_Benzene	20.7421	-0.0146
8.698	77437.79	18236.42	VB	1845.1398	0.2902	41.9685	m and p Xylene	41.9685	-0.0145
9.092	35700.51	9185.86	BB	1763.6605	0.1338	20.2423	o-Xylene	20.2423	-0.0139
9.492	153086.00	33842.89	BB	1443.6978	0.5736	106.0374	4-BROMOFLUOROBENZENE	106.0374	-0.0096
11.269	1144.00	293.29	BB	1415.3052	0.0043	0.8083	1,2,3-TMB	0.8083	0.1077
929088.50		194282.45				467.4308		467.4308	-0.1572

=====  
Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_425.TX0

# Chromatogram

Sample Name : 9505884-03A MSD

File Name : l:\data\tchrom\btex\varj\J\_425.raw

Method : HP\_J.ins

Start Time : 0.00 min

Scale Factor : 1

End Time : 17.33 min

Plot Offset : 2 mV

Sample #: KMD;W;1

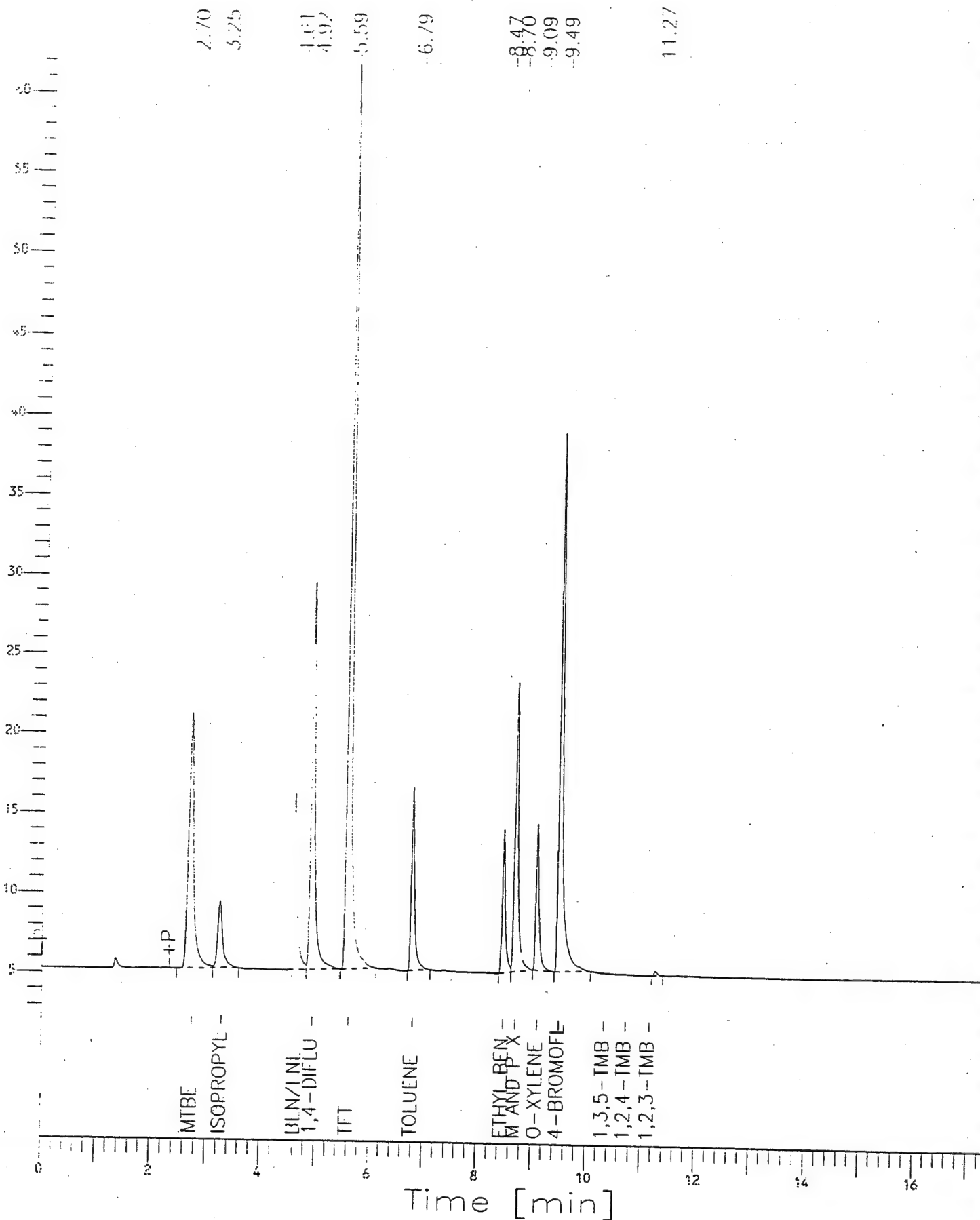
Date : 05/28/95 19:37

Time of Injection: 05/28/95 19:19

Low Point : 2.42 mV

Plot Scale: 60 mV

Page 1 of 1



\*\*\*\*\* SUMMARY LIST\*\*\*\*\*

Work Order: 9505714

ANALYTICAL RUN  
DEFINITION

E950522041714

HP\_F950525135200

HP\_J950525074400

L950524104646



=====  
ftware Version: 3.2 <16C20>  
mple Name : BLANK Time : 05/25/95 09:51  
mple Number: B ;W;1 Study : B602W;1  
erator : YN

strument : HP\_J Channel : A A/D mV Range : 1000  
toSampler : NONE  
ck/Vial : 0/0

erface Serial # : 1092573380 Data Acquisition Time: 05/25/95 09:34  
lay Time : 0.00 min.  
d Time : 17.33 min.  
mpling Rate : 2.0000 pts/sec

4 Data File : l:\data\tchrom\btex\varj\J\_\_259.raw  
sult File : l:\data\tchrom\btex\varj\J\_\_259.rst  
strument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
ccess File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc  
mple File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
quence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

j. Volume : 2 ul Area Reject : 300.00  
mple Amount : 1.0000 Dilution Factor : 1.00

=====  
BTEX Area Percent Report  
=====

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	4.915	124919.00	24211.92	BB	1149.7532	0.4466	108.6485	1,4-DIFLUOROBENZENE	108.6485	-0.0348
2	5.589	279727.25	56687.52	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0326
3	6.789	1033.50	256.29	BB	2428.1209	0.0037	0.4256	Toluene	0.4256	-0.0241
4	8.472	1534.56	366.28	BV	1816.5433	0.0055	0.8448	Ethyl_Benzene	0.8448	-0.0171
5	8.696	3728.18	841.80	VB	1933.8934	0.0133	1.9278	m and p Xylene	1.9278	-0.0158
6	9.089	1670.51	380.63	BB	1848.4951	0.0060	0.9037	o-Xylene	0.9037	-0.0166
7	9.489	153161.00	31740.11	BB	1513.1417	0.5475	101.2205	4-BROMOFLUOROBENZENE	101.2205	-0.0129
		565774.00	114484.56				213.9710		213.9710	-0.1537

=====  
ort Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_259.TXT

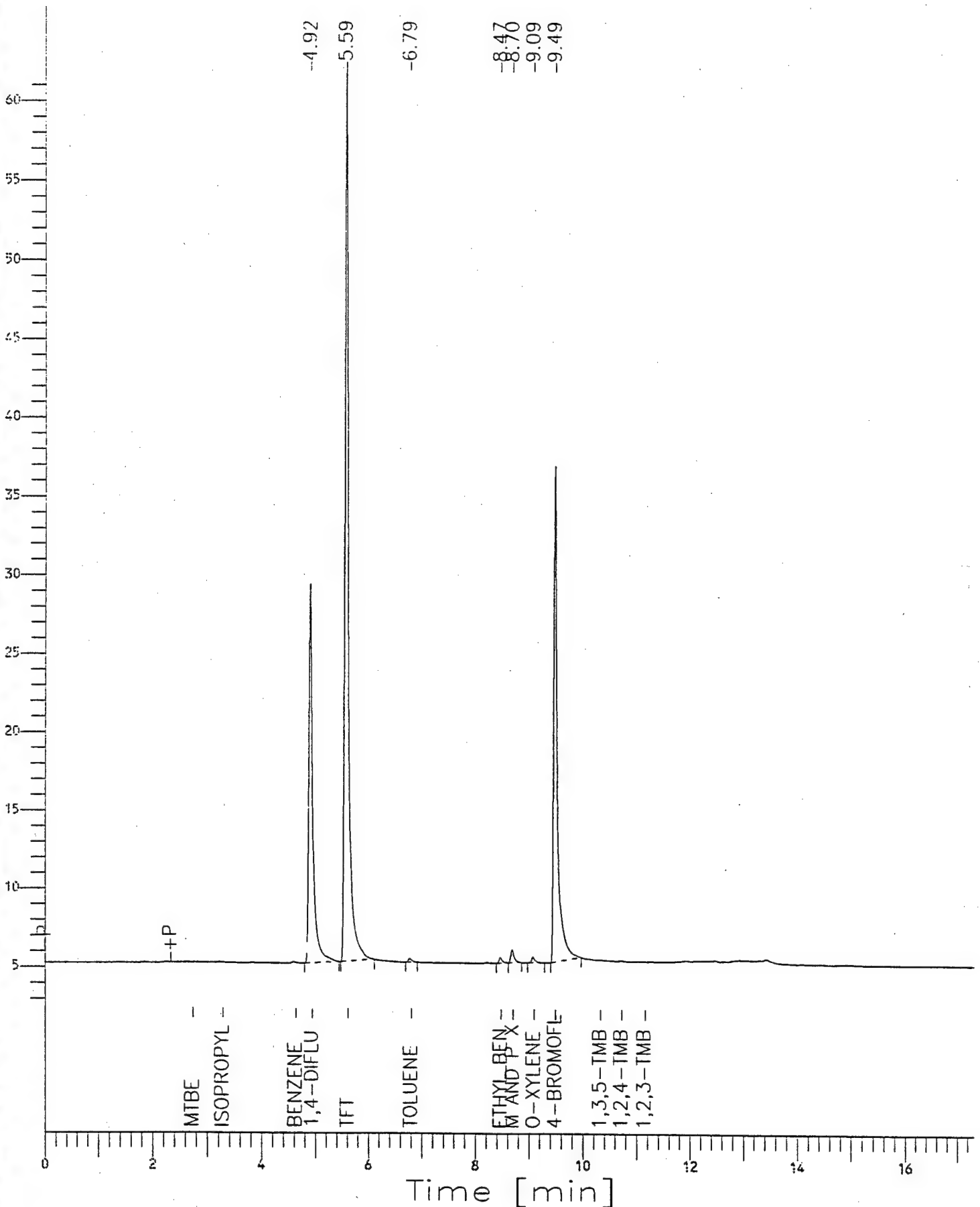
# Chromatogram

File Name : BLANK  
 File Name : l:\data\tchrom\btext\varj\J\_\_259.raw  
 File Name : HP\_J.ins  
 Time : 0.00 min  
 File Factor: 1

End Time : 17.33 min  
 Plot Offset: 2 mV

Sample #: B ;W;1  
 Date : 05/25/95 09:51  
 Time of Injection: 05/25/95 09:34  
 Low Point : 2.42 mV  
 Plot Scale: 60 mV  
 High Point : 61.90 mV

Page 1 of 1



```

=====
Software Version: 3.2 <16C20>
Sample Name : LCS_50           Time       : 05/25/95  07:37
Sample Number: TL ;W;1        Study      : BENZG;1
Operator      : DAO

Instrument    : HP_J           Channel : A      A/D mV Range.: 1000
AutoSampler  : NONE
Vial/Vial    : 0/0

```

```

Interface Serial # : 1092573380  Data Acquisition Time: 05/25/95  07:19
Delay Time       : 0.00 min.
Load Time        : 17.33 min.
Sampling Rate    : 2.0000 pts/sec

```

```

Raw Data File : L:\data\tchrom\btex\varj\J__257.raw
Result File   : L:\data\tchrom\btex\varj\J__257.rst
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP J.ins
Process File  : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc
Sample File   : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

inj. Volume : 2 ul           Area Reject : 300.00
Sample Amount : 1.0000      Dilution Factor : 1.00

```

=====

BTEX Area Percent Report

=====

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/L	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	2.698	50244.00	7748.25	BB	1061.6217	0.1830	47.3276	MTBE	47.3276	-0.0504
2	3.246	3568.50	582.35	BB	1293.8168	0.0130	2.7581	Isopropylether	2.7581	-0.0484
3	4.603	113661.49	22425.59	BV	2589.9219	0.4139	43.8861	Benzene	43.8861	-0.0383
4	4.916	127350.48	24833.48	VB	1128.6849	0.4638	112.8309	1,4-DIFLUOROBENZENE	112.8309	-0.0342
5	5.590	274601.50	57776.51	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0321
6	6.788	104310.00	24604.51	BB	2383.6279	0.3799	43.7610	Toluene	43.7610	-0.0249
7	8.471	80690.91	20360.12	BV	1783.2570	0.2939	45.2492	Ethyl_Benzene	45.2492	-0.0177
8	8.695	192669.58	45216.40	VV	1898.4567	0.7016	101.4875	m and p Xylene	101.4875	-0.0168
9	9.090	86086.02	21671.68	VB	1814.6232	0.3135	47.4402	o-Xylene	47.4402	-0.0158
10	9.490	164014.52	36444.74	BB	1485.4147	0.5973	110.4167	4-BROMOFLUOROBENZENE	110.4167	-0.0121
11	13.487	968.00	139.41	BB	1.0000e6	-----	0.0010		0.0010	0.0000
		1198165.00	261803.05				555.1581		555.1581	-0.2905

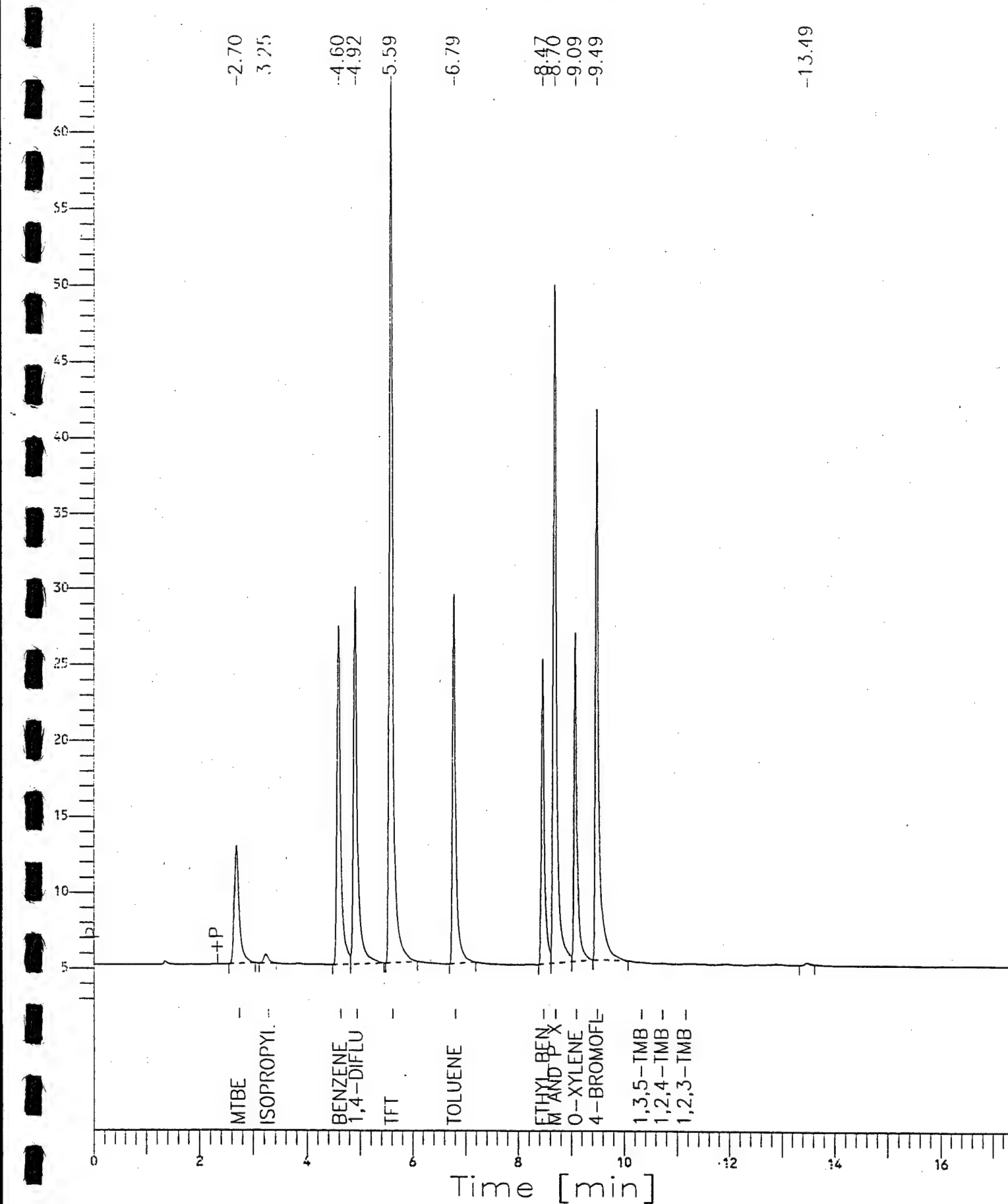
Report Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_257.TX0

# Chromatogram

File Name : LCS\_50  
 eName : l:\data\tchrom\btex\varj\J\_257.raw  
 Method : HP J.ins  
 Time : 0.00 min  
 Factor : 1

Sample #: TL ;W;1  
 Date : 05/25/95 07:37  
 Time of Injection: 05/25/95 07:19  
 Low Point : 2.37 mV  
 High Point : 63.07 mV  
 Plot Scale: 61 mV

Page 1 of 1



```

=====
Software Version: 3.2 <16C20>
Sample Name : STD_50
Sample Number: TC ;W;1
Operator : DAO

Time : 05/25/95 08:02
Study : BENZG;1

Instrument : HP_J
AutoSampler : NONE
Check/Vial : 0/0

Channel : A A/D mV Range : 1000

```

```

=====
Interface Serial # : 1092573380 Data Acquisition Time: 05/25/95 07:44
Delay Time : 0.00 min.
Load Time : 17.33 min.
Sampling Rate : 2.0000 pts/sec

```

```

=====
Raw Data File : L:\data\tchrom\btex\varj\J__258.raw
Result File : L:\data\tchrom\btex\varj\J__258.rst
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
Access File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

=====
Injection Volume : 2 ul
Sample Amount : 1.0000
Area Reject : 300.00
Dilution Factor : 1.00

```

=====

BTEX Area Percent Report

=====

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	2.701	56956.45	8627.97	BV	1091.2192	0.2018	52.1952	MTBE	52.1952	-0.0475
2	3.248	68229.78	10106.46	VB	1329.8876	0.2417	51.3049	Isopropylether	51.3049	-0.0460
3	4.605	137509.59	26820.39	BV	2662.1274	0.4872	51.6540	Benzene	51.6540	-0.0365
4	4.917	131337.41	25109.17	VB	1160.1521	0.4653	113.2071	1,4-DIFLUOROBENZENE	113.2071	-0.0331
5	5.591	282257.25	58401.00	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0308
6	6.788	122404.50	28183.28	BB	2450.0820	0.4337	49.9594	Toluene	49.9594	-0.0250
7	8.470	90109.89	22614.78	BV	1832.9731	0.3193	49.1605	Ethyl Benzene	49.1605	-0.0191
8	8.693	206005.22	47157.02	VV	1951.3846	0.7299	105.5687	m and p Xylene	105.5687	-0.0186
9	9.088	94640.64	23150.70	VB	1865.2140	0.3353	50.7398	o-Xylene	50.7398	-0.0182
10	9.488	163131.52	35070.36	BB	1526.8274	0.5780	106.8435	4-BROMOFLUOROBENZENE	106.8435	-0.0141
		1352582.25	285241.13				630.6331		630.6331	-0.2889

Report Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_258.TX0

# Chromatogram

File Name : STD\_50

File Name : l:\data\tchrom\btex\varj\J\_\_258.raw

File Name : HP\_J.ins

Time : 0.00 min

File Factor : 1

End Time : 17.33 min

Plot Offset : 2 mV

Sample #: TC ;W;1

Date : 05/25/95 08:02

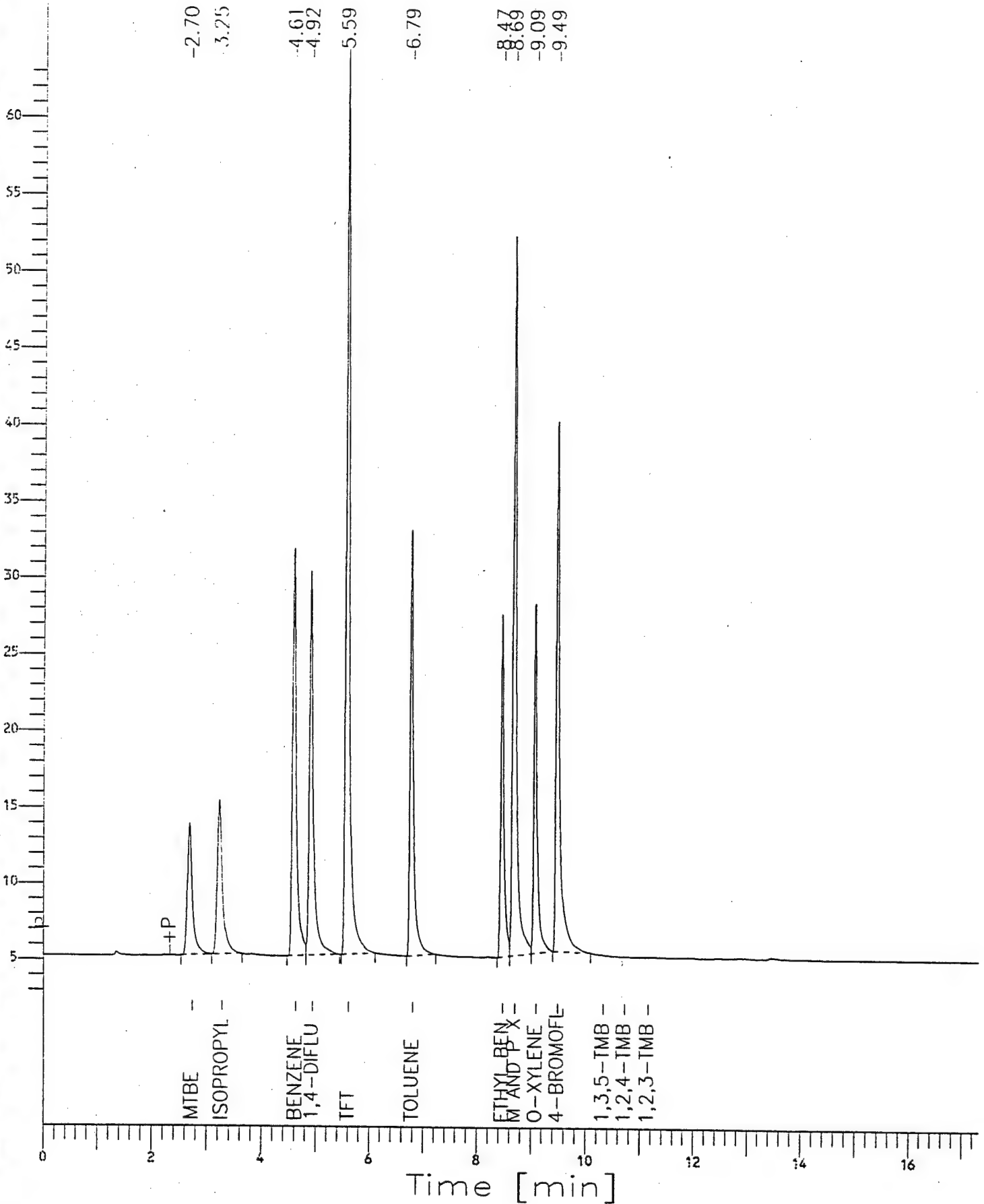
Time of Injection: 05/25/95 07:44

Low Point : 2.33 mV

Plot Scale: 62 mV

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High Point : 63.84 mV



=====

Software Version: 3.2 <16C20>  
Sample Name : 9505840-01A MS                      Time : 05/25/95 20:10  
Sample Number: KM ;W;1                            Study : BTEXW;1  
Operator : YN

Instrument : HP\_J                                      Channel : A                      A/D mV Range : 1000  
AutoSampler : NONE  
Back/Vial : 0/0

Interface Serial # : 1092573380      Data Acquisition Time: 05/25/95 19:52  
Delay Time : 0.00 min.  
Load Time : 17.33 min.  
Sampling Rate : 2.0000 pts/sec

Raw Data File : L:\data\tchrom\btex\varj\J\_\_282.raw  
Result File : L:\data\tchrom\btex\varj\J\_\_282.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

inj. Volume : 2 ul                                      Area Reject : 300.00  
Sample Amount : 1.0000                                Dilution Factor : 1.00

=====

BTEX Area Percent Report

=====

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/L	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	2.697	24475.75	3751.62	BB	1082.7080	0.0874	22.6061	MTBE	22.6061	-0.0507
2	3.245	27399.75	4016.68	BB	1319.5151	0.0978	20.7650	Isopropylether	20.7650	-0.0489
3	4.033	953.50	149.61	BB	1.0000e6	-----	0.0010		0.0010	0.0000
4	4.603	57624.50	10866.58	BV	2641.3640	0.2058	21.8162	Benzene	21.8162	-0.0390
5	4.914	127643.00	24505.22	VB	1151.1033	0.4558	110.8875	1,4-DIFLUOROBENZENE	110.8875	-0.0356
6	5.590	280055.75	57451.64	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0319
7	6.371	902.00	196.13	BB	1.0000e6	-----	0.0009		0.0009	0.0000
8	6.788	49350.00	11134.01	BB	2430.9724	0.1762	20.3005	Toluene	20.3005	-0.0248
9	8.470	35933.77	8666.11	BV	1818.6766	0.1283	19.7582	Ethyl_Benzene	19.7582	-0.0193
0	8.693	81834.21	17934.47	VV	1936.1646	0.2922	42.2661	m and p Xylene	42.2661	-0.0192
1	9.086	37586.52	8893.95	VB	1850.6659	0.1342	20.3097	o-Xylene	20.3097	-0.0198
2	9.486	159440.00	33783.93	BB	1514.9188	0.5693	105.2466	4-BROMOFLUOROBENZENE	105.2466	-0.0157
3	11.260	2919.50	292.17	BB	1485.1254	0.0104	1.9658	1,2,3-TMB	1.9658	0.0991
4	11.944	3889.50	348.93	BB	1.0000e6	-----	0.0039		0.0039	0.0000
5	12.481	2885.59	338.87	BV	1.0000e6	-----	0.0029		0.0029	0.0000
6	12.858	4727.41	337.15	VB	9.9999e5	-----	0.0047		0.0047	0.0000
		897620.63	182667.09				385.9351		385.9351	-0.2057

=====

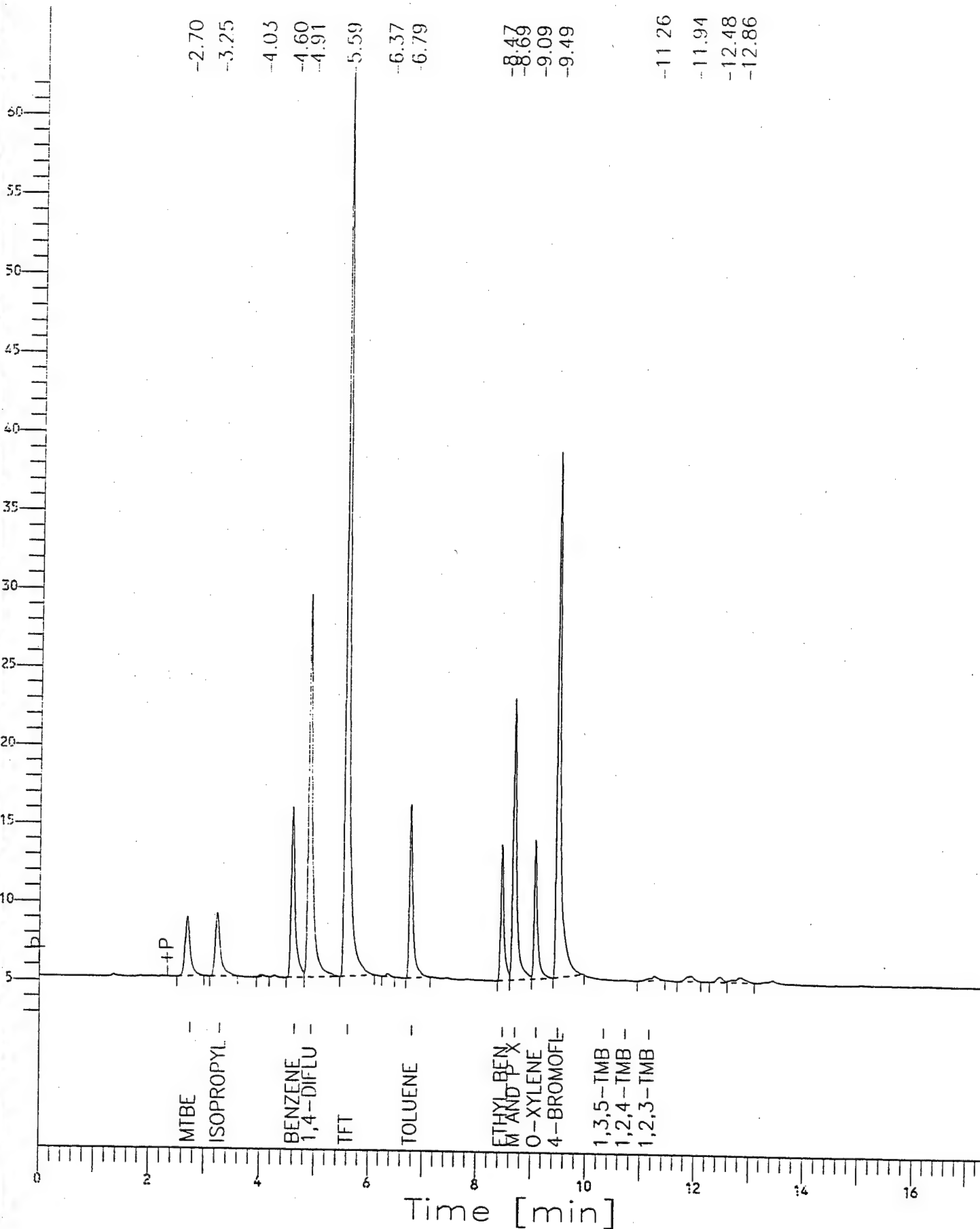
Report Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_282.TXT

# Chromatogram

File Name : 9505840-01A MS  
 eName : l:\data\tchrom\btex\varj\J\_\_282.raw  
 Method : HP\_J.ins  
 Time : 0.00 min  
 Factor : 1

Sample #: KM ;W;1  
 Date : 05/25/95 20:10  
 Time of Injection: 05/25/95 19:52  
 Low Point : 2.38 mV  
 Plot Scale: 60 mV  
 High Point : 62.79 mV

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```

=====
Software Version: 3.2 <16C20>
Sample Name : 9505840-01A MSD      Time       : 05/25/95  20:35
Sample Number: KMD;W;1             Study        : BTEXW;1
Operator      : YN

Instrument    : HP_J               Channel : A      A/D mV Range : 1000
AutoSampler  : NONE
Inlet/Vial   : 0/0

```

```

Interface Serial # : 1092573380   Data Acquisition Time: 05/25/95  20:18
Injection Time     : 0.00 min.
Sample Time        : 17.33 min.
Sampling Rate      : 2.0000 pts/sec

```

```

Data File : L:\data\tchrom\btex\varj\J__283.raw
Result File : L:\data\tchrom\btex\varj\J__283.rst
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
Process File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

Injection Volume : 2 ul           Area Reject : 300.00
Sample Amount    : 1.0000        Dilution Factor : 1.00

```

# BTEX Area Percent Report

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	2.697	24962.50	3794.30	BB	1098.4941	0.0879	22.7243	MTBE	22.7243	-0.0508
2	3.245	26971.50	3955.93	BB	1338.7538	0.0949	20.1467	Isopropylether	20.1467	-0.0497
3	4.032	1043.50	164.76	BB	1.0000e6	-----	0.0010		0.0010	0.0000
4	4.600	54505.77	10318.27	BV	2679.8755	0.1918	20.3389	Benzene	20.3389	-0.0417
5	4.911	128789.73	25139.96	VB	1167.8366	0.4533	110.2759	1,4-DIFLUOROBENZENE	110.2759	-0.0384
6	5.586	284139.00	58720.40	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0358
7	6.368	759.00	170.08	BB	1.0000e6	-----	0.0008		0.0008	0.0000
8	6.785	46159.00	10538.73	BB	2466.4165	0.1625	18.7150	Toluene	18.7150	-0.0280
9	8.469	33109.42	8002.21	BV	1845.1932	0.1165	17.9436	Ethyl_Benzene	17.9436	-0.0197
10	8.693	72705.08	16402.67	VB	1964.3942	0.2559	37.0115	m and p Xylene	37.0115	-0.0192
11	9.087	32878.00	8136.95	BB	1877.6488	0.1157	17.5102	o-Xylene	17.5102	-0.0192
12	9.488	158480.02	33026.10	BB	1537.0064	0.5578	103.1095	4-BROMOFLUOROBENZENE	103.1095	-0.0141
		864502.50	178370.34				367.7774		367.7774	-0.3164

Report Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_283.TXT

# Chromatogram

File Name : 9505840-01A MSD

Sample #: KMD;W;1

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File Name : l:\data\tchrom\btex\varj\J\_\_283.raw

Date : 05/25/95 20:35

File Name : HP\_J.ins

Time of Injection: 05/25/95 20:18

Time : 0.00 min

End Time : 17.33 min

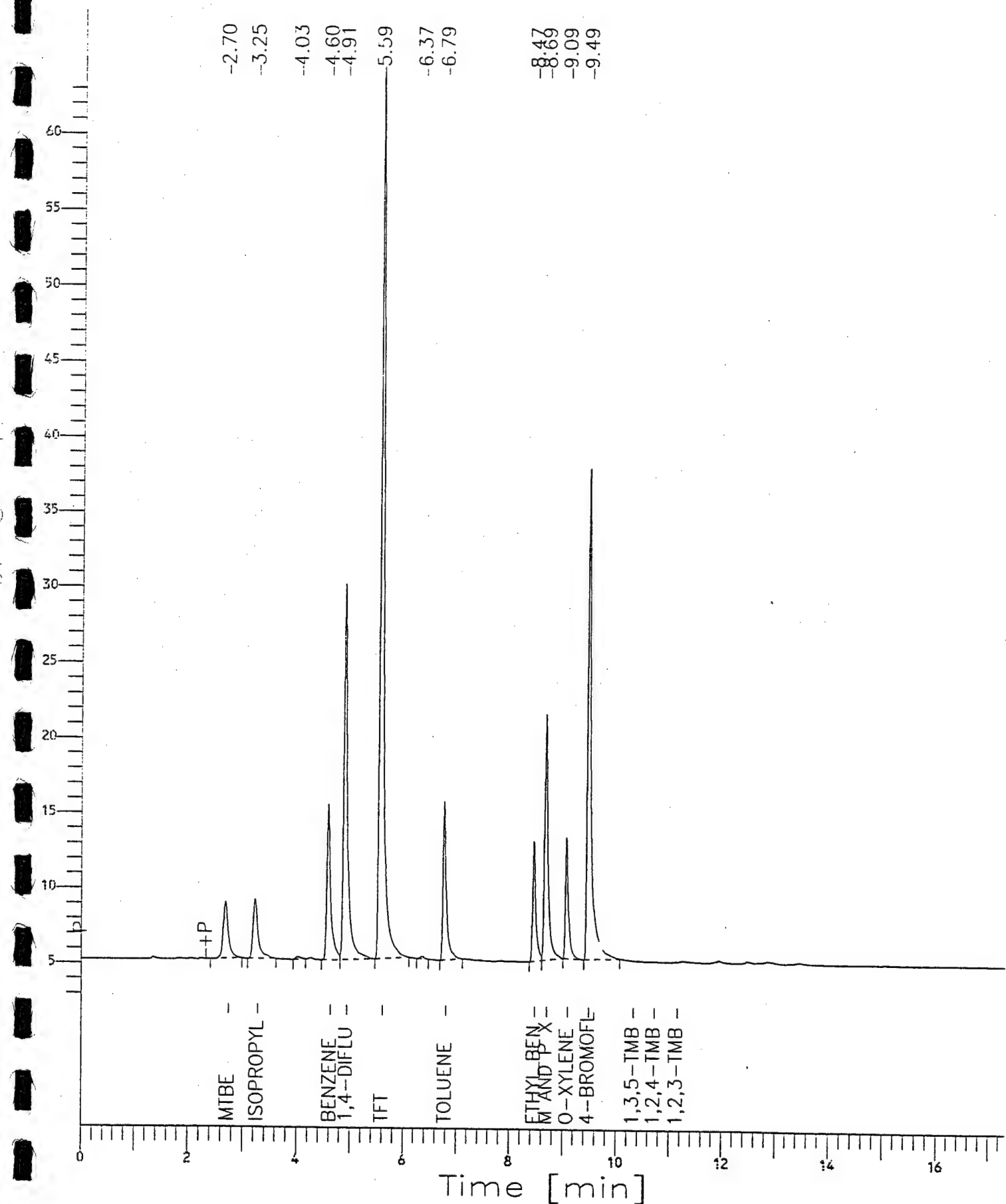
Low Point : 2.33 mV

High Point : 63.88 mV

Factor : 1

Plot Offset: 2 mV

Plot Scale: 62 mV



```

=====
ftware Version: 3.2 <16C20>
mple Name : BLANK
mple Number: B ;W;1
erator : YN
Time : 05/27/95 19:42
Study : BTEXW6;1

```

```

strument : HP_J
toSampler : NONE
ck/Vial : 0/0
Channel : A A/D mV Range : 1000

```

```

terface Serial # : 1092573380 Data Acquisition Time: 05/27/95 19:25
lay Time : 0.00 min.
d Time : 17.33 min.
mpling Rate : 2.0000 pts/sec

```

```

w Data File : L:\data\tchrom\btex\varj\J__375.raw
ult File : L:\data\tchrom\btex\varj\J__375.rst
strument File: L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
ocess File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc
mple File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
quence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

j. Volume : 2 ul
mple Amount : 1.0000
Area Reject : 300.00
Dilution Factor : 1.00

```

=====

BTEX Area Percent Report

=====

ak Ret Time # [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1 3.234	1150.00	190.06	BB	1253.8928	0.0043	0.9171	Isopropylether	0.9171	-0.0596
2 3.833	1206.00	216.17	BB	1.0000e6	-----	0.0012		0.0012	0.0000
3 4.919	119148.50	23588.39	BB	1093.8566	0.4477	108.9252	1,4-DIFLUOROBENZENE	108.9252	-0.0308
4 5.594	266128.00	55169.65	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0282
5 9.495	139946.50	28886.30	BB	1439.5786	0.5259	97.2135	4-BROMOFLUOROBENZENE	97.2135	-0.0075
						207.0570		207.0570	-0.1261

=====

ort Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_375.TX0

# Chromatogram

Sample Name : BLANK

File Name : I:\data\tchrom\btex\varj\J\_\_\_375.raw

File Type : HP\_J.ins

Run Time : 0.00 min

Factor : 1

End Time : 17.33 min

Plot Offset: 3 mV

Sample #: B ;W;1

Date : 05/27/95 19:42

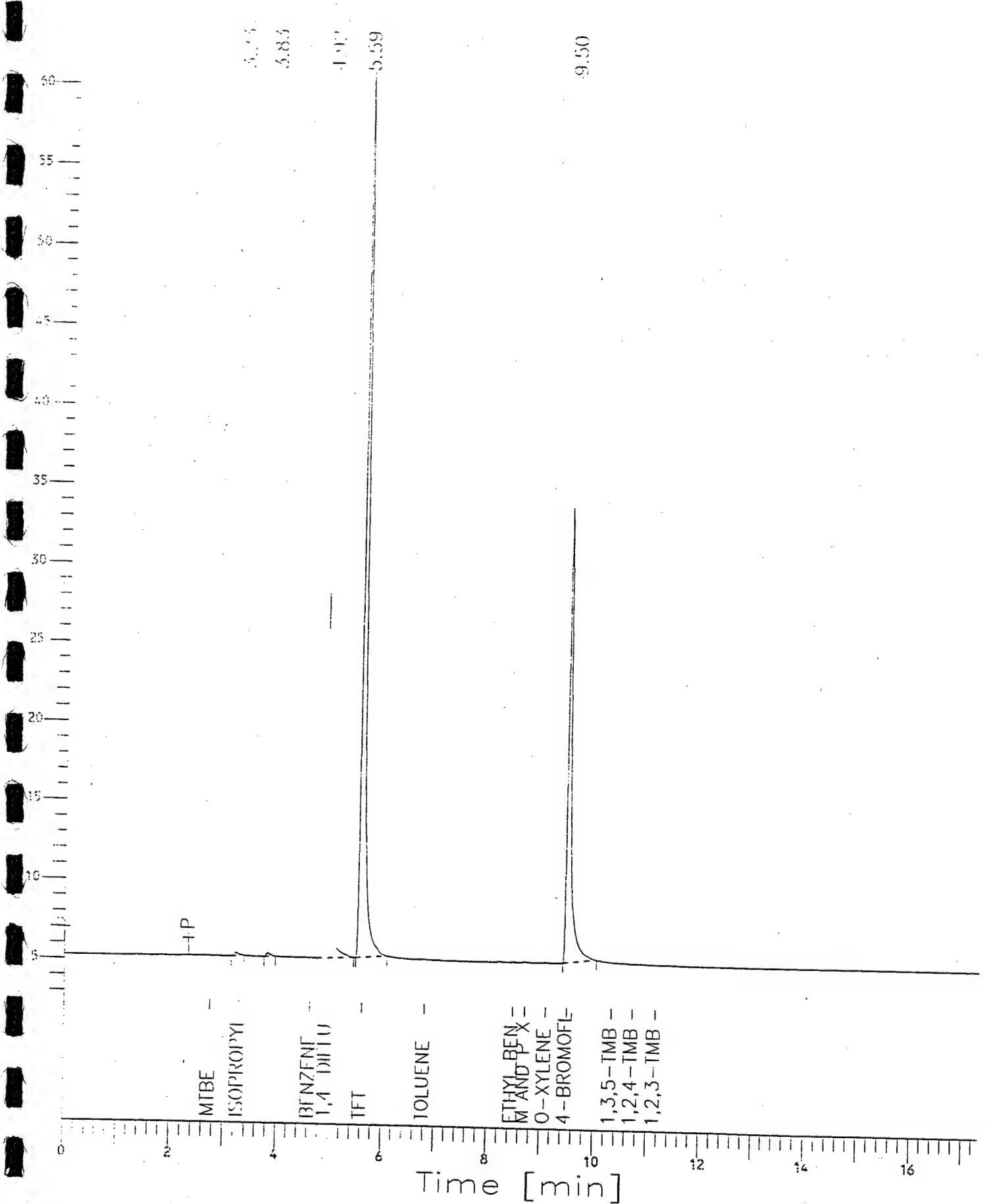
Time of Injection: 05/27/95 19:25

Low Point : 2.50 mV

Plot Scale: 58 mV

Page 1 of 1

High Point : 60.42 mV



```

=====
ftware Version: 3.2 <16C20>
mple Name   : LCS-50           Time       : 05/27/95  17:36
mple Number : TL ;W;1         Study        : BTEXW6;1
erator      : YN

strument    : HP_J             Channel : A      A/D mV Range : 1000
toSampler   : NONE
ck/Vial     : 0/0

```

```

erface Serial # : 1092573380   Data Acquisition Time: 05/27/95  17:18
lay Time       : 0.00 min.
d Time         : 17.33 min.
mpling Rate    : 2.0000 pts/sec

```

```

w Data File   : L:\data\tchrom\btex\varj\J___370.raw
ult File      : L:\data\tchrom\btex\varj\J___370.rst
rument File   : L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
ocess File    : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc
mple File     : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
quence File   : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

j. Volume     : 2 ul           Area Reject   : 300.00
mple Amount   : 1.0000        Dilution Factor : 1.00

```

BTEX Area Percent Report

Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
	2.705	45252.70	6876.90	BV	1048.7478	0.1668	43.1493	MTBE	43.1493	-0.0431
	3.254	5527.81	900.80	VB	1278.1271	0.0204	4.3249	Isopropylether	4.3249	-0.0403
	4.609	106996.88	21266.39	BV	2558.5149	0.3944	41.8199	Benzene	41.8199	-0.0330
	4.920	125049.95	24627.38	VB	1114.9978	0.4610	112.1527	1,4-DIFLUOROBENZENE	112.1527	-0.0302
	5.593	271271.50	57761.27	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0285
	6.790	98994.00	23827.34	BB	2354.7222	0.3649	42.0406	Toluene	42.0406	-0.0229
	8.473	77000.05	19735.72	BV	1761.6318	0.2839	43.7095	Ethyl_Benzene	43.7095	-0.0165
	8.696	181827.50	43648.61	VV	1875.4346	0.6703	96.9522	m and p Xylene	96.9522	-0.0162
	9.090	81166.69	20847.45	VB	1792.6178	0.2992	45.2783	o-Xylene	45.2783	-0.0158
	9.491	154363.75	34999.03	BB	1467.4016	0.5690	105.1953	4-BROMOFLUOROBENZENE	105.1953	-0.0110
		1147450.88	254490.89				534.6227		534.6227	-0.2575

ort Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_\_370.TX0

# Chromatogram

File Name : LCS-50

Sample Name : l:\data\tchrom\btex\varj\J\_370.raw

HP\_J.ins

Time : 0.00 min

Factor : 1

End Time : 17.33 min

Plot Offset: 2 mV

Sample #: TL ;W;1

Date : 05/27/95 17:36

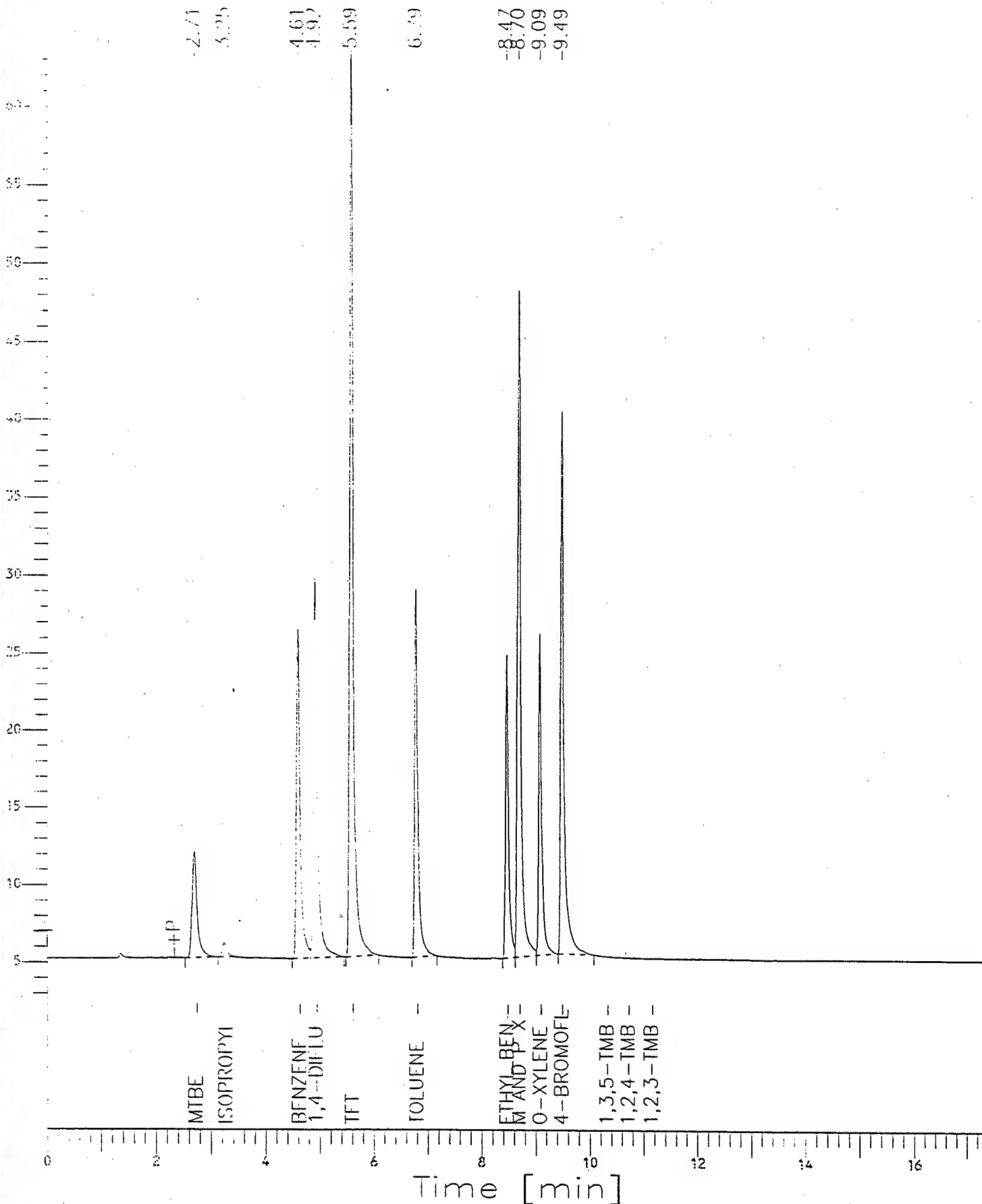
Time of Injection: 05/27/95 17:18

Low Point : 2.37 mV

Plot Scale: 61 mV

Page 1 of 1

High Point : 63.55 mV



=====

Software Version: 3.2 <16C20>  
Sample Name : STD-50  
Sample Number: TC ;W;1  
Operator : YN

Time : 05/27/95 18:01  
Study : BTEXW6;1

Instrument : HP\_J  
AutoSampler : NONE  
Vial : 0/0

Channel : A A/D mV Range : 1000

Interface Serial # : 1092573380 Data Acquisition Time: 05/27/95 17:43  
Play Time : 0.00 min.  
Hold Time : 17.33 min.  
Sampling Rate : 2.0000 pts/sec

Raw Data File : l:\data\tchrom\btex\varj\J\_\_\_371.raw  
Result File : l:\data\tchrom\btex\varj\J\_\_\_371.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

Injection Volume : 2 ul  
Sample Amount : 1.0000

Area Reject : 300.00  
Dilution Factor : 1.00

=====

BTEX Area Percent Report

=====

Peak Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.701	54961.27	8458.87	BV	1053.2148	0.2018	52.1843	MTBE	52.1843	-0.0475
3.249	66587.22	10036.54	VB	1283.5713	0.2444	51.8765	Isopropylether	51.8765	-0.0456
4.605	134478.25	26952.77	BV	2569.4128	0.4936	52.3381	Benzene	52.3381	-0.0366
4.917	126563.75	25102.06	VB	1119.7472	0.4646	113.0289	1,4-DIFLUOROBENZENE	113.0289	-0.0331
5.592	272427.00	58179.31	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0300
6.788	120588.00	29140.53	BB	2364.7524	0.4426	50.9939	Toluene	50.9939	-0.0246
8.470	90146.59	23712.40	BV	1769.1357	0.3309	50.9552	Ethyl_Benzene	50.9552	-0.0191
8.693	198470.66	49387.59	VB	1883.4232	0.7285	105.3776	m and p Xylene	105.3776	-0.0190
9.087	89902.75	24155.52	BB	1800.2537	0.3300	49.9389	o-Xylene	49.9389	-0.0189
9.488	161417.00	36986.49	BB	1473.6521	0.5925	109.5354	4-BROMOFLUOROBENZENE	109.5354	-0.0145
1315542.50		292112.06				636.2288		636.2288	-0.2888

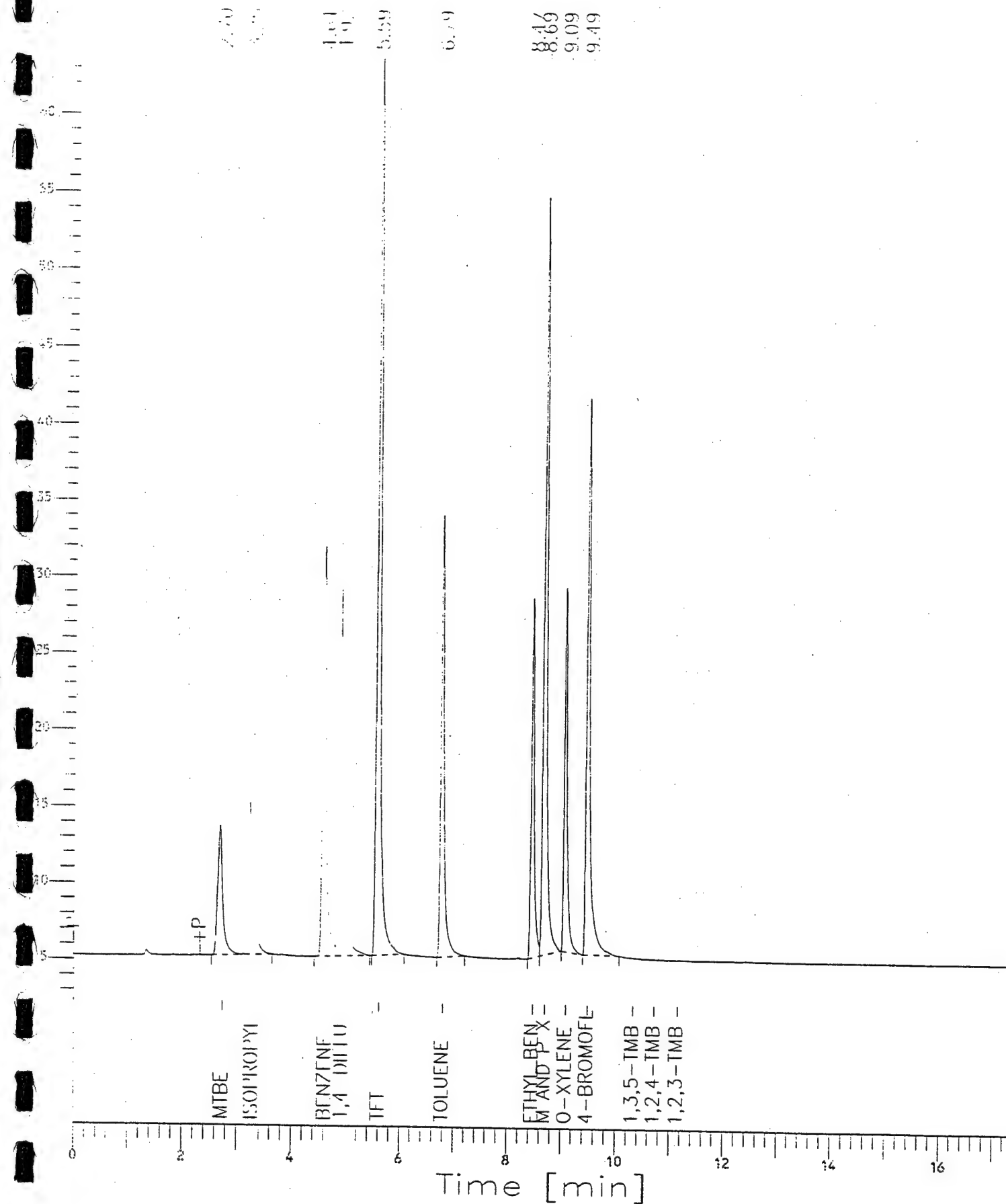
Report Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_\_371.TXT

# Chromatogram

e Name : STD-50  
 Name : l:\data\tchrom\btext\varj\J\_371.raw  
 Date : HP\_J.ins  
 Time : 0.00 min  
 Factor : 1

Sample #: TC ;W;1  
 Date : 05/27/95 18:01  
 Time of Injection: 05/27/95 17:43  
 Low Point : 2.34 mV  
 High Point : 63.59 mV  
 Plot Scale: 61 mV

Page 1 of 1





=====  
Software Version: 3.2 <16C20>  
File Name : 9595858--05A MS                      Time : 05/27/95 18:51  
File Number: KM ;W;1                              Study : BTEXW6;1  
Detector : YN

Instrument : HP\_J                                      Channel : A                      A/D mv Range : 1000  
Sampler : NONE  
K/Vial : 0/0

Interface Serial # : 1092573380      Data Acquisition Time: 05/27/95 18:34  
Run Time : 0.00 min.  
Time : 17.33 min.  
Sampling Rate : 2.0000 pts/sec

Data File : L:\data\tchrom\btex\varj\J\_\_373.raw  
Raw File : L:\data\tchrom\btex\varj\J\_\_373.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

Sample Volume : 2 ul                                      Area Reject : 300.00  
Sample Amount : 1.0000                                  Dilution Factor : 1.00

=====  
BTEX Area Percent Report  
=====

Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.703	21602.00	3352.79	BB	1034.3294	0.0807	20.8850	MTBE	20.8850	-0.0457
3.251	26642.25	4002.44	BB	1260.5549	0.0996	21.1353	Isopropylether	21.1353	-0.0431
4.608	55439.03	10890.85	BV	2523.3398	0.2072	21.9705	Benzene	21.9705	-0.0339
4.920	121812.70	24147.50	VB	1099.6686	0.4553	110.7722	1,4-DIFLUOROBENZENE	110.7722	-0.0303
5.594	267542.00	56166.65	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0274
6.792	47625.00	11149.70	BB	2322.3491	0.1780	20.5073	Toluene	20.5073	-0.0214
8.473	35011.44	8611.10	BV	1737.4126	0.1309	20.1515	Ethyl_Benzene	20.1515	-0.0158
8.696	73275.06	16967.49	VB	1849.6506	0.2739	39.6156	m and p Xylene	39.6156	-0.0157
9.091	33490.50	8466.85	BB	1767.9725	0.1252	18.9429	o-Xylene	18.9429	-0.0151
9.492	147771.50	31994.29	BB	1447.2277	0.5523	102.1066	4-BROMOFLUOROBENZENE	102.1066	-0.0103
830211.50		175749.66				376.0869		376.0869	-0.2588

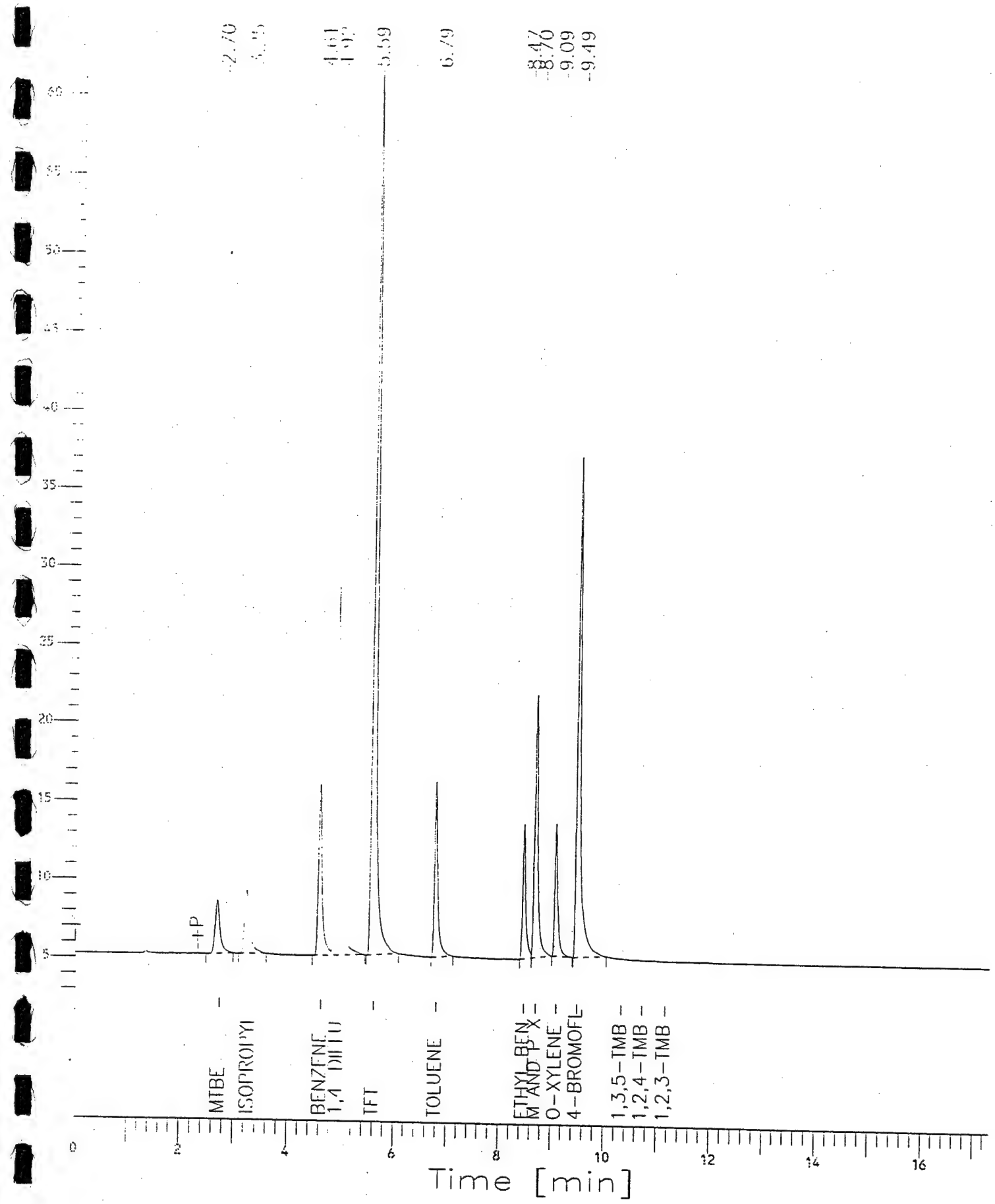
=====  
Data Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_373.TXT

# Chromatogram

Name : 9595858--05A.MS  
 eName : !:\data\tchrom\btext\varj\J\_\_373.raw  
 Method : HP\_J.ins  
 Start Time : 0.00 min  
 Factor : 1

Sample #: KM ;W;1  
 Date : 05/27/95 18:52  
 Time of Injection: 05/27/95 18:34  
 Low Point : 2.46 mV  
 Plot Scale: 59 mV

Page 1 of 1



```

=====
Software Version: 3.2 <16C20>
Sample Name : 9505858-05A MSD           Time       : 05/27/95  19:17
Sample Number: KMD;W;1                   Study        : BTEXW6;1
Preparator   : YN

Instrument    : HP_J                     Channel : A      A/D mV Range : 1000
AutoSampler  : NONE
Vial/Vial    : 0/0

```

```

Interface Serial # : 1092573380   Data Acquisition Time: 05/27/95  18:59
Injection Time     : 0.00 min.
Run Time          : 17.33 min.
Sampling Rate     : 2.0000 pts/sec

```

```

Data File   : L:\data\tchrom\btex\varj\J__374.raw
Result File  : L:\data\tchrom\btex\varj\J__374.rst
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
Access File  : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc
Sample File  : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Sequence File: L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

Injection Volume : 2 ul                Area Reject : 300.00
Sample Amount    : 1.0000              Dilution Factor : 1.00

```

=====

BTEX Area Percent Report

=====

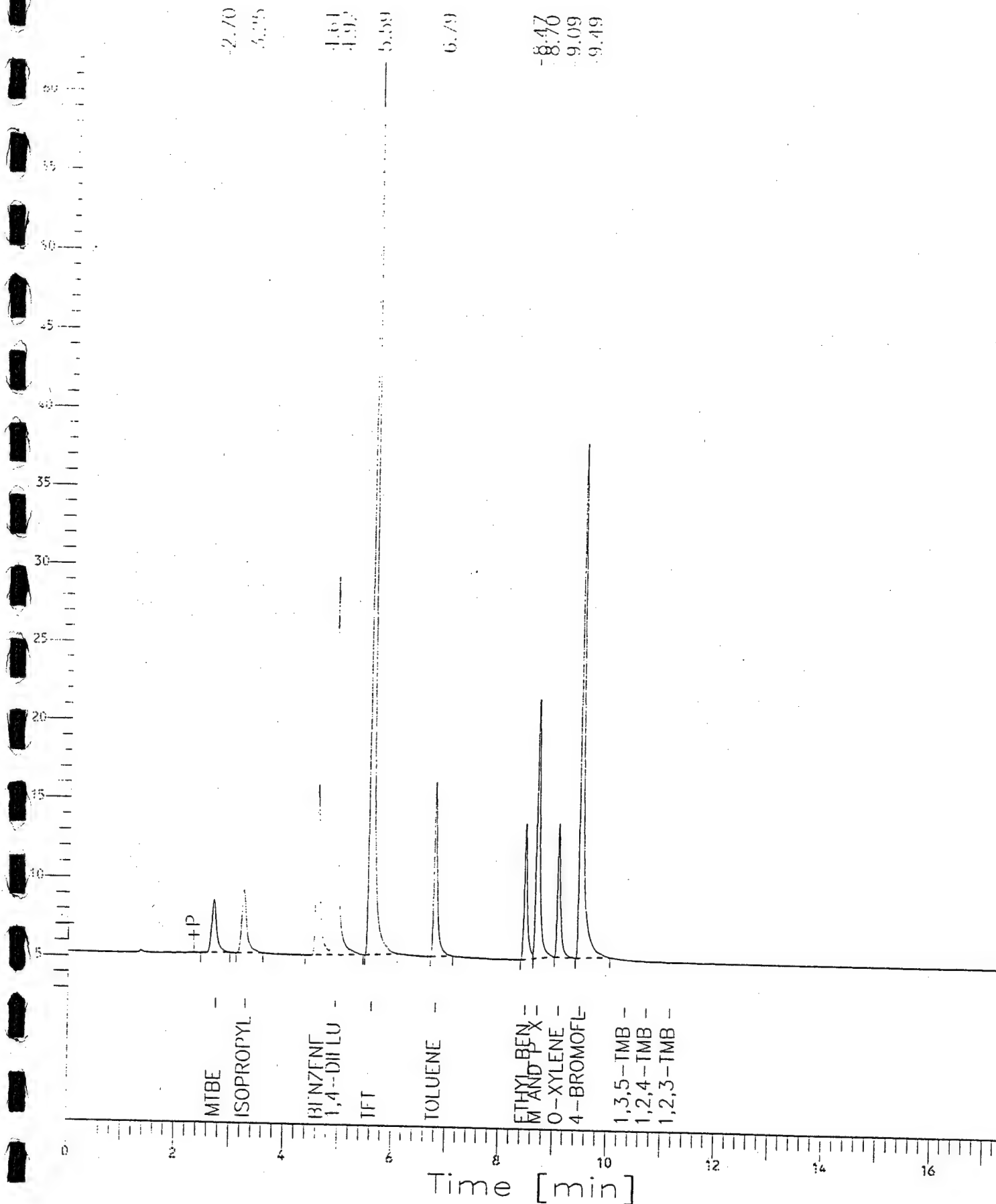
< Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.703	21483.50	3346.66	BB	1032.2009	0.0805	20.8133	MTBE	20.8133	-0.0457
3.251	26442.50	3987.81	BB	1257.9613	0.0990	21.0201	Isopropylether	21.0201	-0.0432
4.606	54628.05	10794.17	BV	2518.1477	0.2046	21.6937	Benzene	21.6937	-0.0354
4.918	121081.45	24163.90	VB	1097.4059	0.4535	110.3343	1,4-DIFLUOROBENZENE	110.3343	-0.0322
5.592	266991.50	56655.78	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0299
6.789	46985.50	11090.37	BB	2317.5706	0.1760	20.2736	Toluene	20.2736	-0.0235
8.473	34564.73	8583.96	BV	1733.8378	0.1295	19.9354	Ethyl_Benzene	19.9354	-0.0159
8.696	71524.52	16645.59	VB	1845.8449	0.2679	38.7489	m and p Xylene	38.7489	-0.0160
9.091	32892.00	8406.51	BB	1764.3347	0.1232	18.6427	o-Xylene	18.6427	-0.0153
9.491	149150.25	32803.36	BB	1444.2496	0.5586	103.2718	4-BROMOFLUOROBENZENE	103.2718	-0.0109
						374.7339		374.7339	-0.2680
825744.00		176478.13							

Report Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_374.TX0

# Chromatogram

File Name : 9505858-05A MSD  
 Name : l:\data\tchrom\btex\varj\J\_\_\_374.raw  
 HP\_J.ins  
 Time : 0.00 min  
 Factor : 1  
 End Time : 17.33 min  
 Plot Offset: 2 mV

Sample #: KMD;W;1  
 Date : 05/27/95 19:17  
 Time of Injection: 05/27/95 18:59  
 Low Point : 2.42 mV  
 Plot Scale: 60 mV  
 High Point : 62.06 mV



```

=====
Software Version: 3.2 <16C20>
Sample Name : 9505768-03A          Time       : 05/28/95  05:00
Sample Number: SC ;W;25           Study      : BTEXW;1
Sample Vial : YN

Instrument : HP_J                  Channel : A      A/D mV Range : 1000
Sampler   : NONE
Injection : 0/0

```

```

Interface Serial # : 1092573380   Data Acquisition Time: 05/28/95  04:43
Injection Time     : 0.00 min.
Sample Time       : 17.33 min.
Injection Rate     : 2.0000 pts/sec

```

```

Data File : L:\data\tchrom\btex\varj\J__397.raw
Alt File  : L:\data\tchrom\btex\varj\J__397.rst
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
Process File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc
Sample File  : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

Sample Volume : 2 ul              Area Reject : 300.00
Sample Amount : 1.0000           Dilution Factor : 25.00

```

# BTEX Area Percent Report

< Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.468	5553.33	1108.37	BV	1.0000e6	-----	0.1388		0.0056	0.0000
2.696	285438.94	43467.62	VE	1044.9241	1.0561	6829.1787	MTBE	273.1671	-0.0522
3.321	5906.00	493.75	EV	1273.4672	0.0219	115.9433	Isopropylether	4.6377	0.0260
3.451	4941.79	660.78	VV	9.9999e5	-----	0.1235		0.0049	0.0000
3.613	1524.41	287.42	VB	1.0000e6	-----	0.0381		0.0015	0.0000
4.022	609.75	120.06	BB	1.0000e6	-----	0.0152		0.0006	0.0000
4.280	1400.00	321.20	BB	1.0000e6	-----	0.0350		0.0014	0.0000
4.604	51781.03	10374.61	BV	2549.1870	0.1916	507.8191	Benzene	20.3128	-0.0377
4.915	122944.22	24980.67	VB	1110.9327	0.4549	2766.6892	1,4-DIFLUOROBENZENE	110.6676	-0.0348
5.590	270282.50	59248.81	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0316
6.370	4202.25	713.98	BB	1.0000e6	-----	0.1051		0.0042	0.0000
6.788	144283.50	35998.90	BB	2346.1375	0.5338	1537.4579	Toluene	61.4983	-0.0249
7.298	1073.50	336.51	BB	1.0000e6	-----	0.0268		0.0011	0.0000
8.471	13594.00	3829.61	BB	1755.2094	0.0503	193.6236	Ethyl_Benzene	7.7450	-0.0179
8.692	444837.00	118988.49	BB	1868.5973	1.6458	5951.4834	m and p Xylene	238.0593	-0.0201
9.088	276284.00	78107.31	BB	1786.0824	1.0222	3867.1787	o-Xylene	154.6872	-0.0178
9.487	175436.89	45079.22	BV	1462.0518	0.6491	2999.8408	4-BROMOFLUOROBENZENE	119.9936	-0.0153
9.961	3077.86	982.91	VB	1.0000e6	-----	0.0770		0.0031	0.0000
10.113	104713.70	22939.71	BV	1.0000e6	-----	2.6178		0.1047	0.0000
10.319	58480.97	17668.52	VV	1687.3441	0.2164	866.4647	1,3,5-TMB	34.6586	-0.0216
10.417	45581.34	12319.73	VB	1.0000e6	-----	1.1395		0.0456	0.0000
10.712	146503.50	42341.57	BB	1494.2783	0.5420	2451.0745	1,2,4-TMB	98.0430	-0.0218
11.141	38977.40	12254.32	BV	1433.2981	0.1442	679.8550	1,2,3-TMB	27.1942	-0.0212
11.260	37016.34	10374.91	VE	1.0000e6	-----	0.9254		0.0370	0.0000
11.458	3136.00	966.49	EB	1.0000e6	-----	0.0784		0.0031	0.0000
11.661	1118.25	420.10	BB	1.0000e6	-----	0.0280		0.0011	0.0000
11.876	3842.24	739.84	BB	1.0000e6	-----	0.0961		0.0038	0.0000
12.255	1421.25	446.23	BB	9.9999e5	-----	0.0355		0.0014	0.0000
12.539	9097.50	1797.86	BV	1.0000e6	-----	0.2274		0.0091	0.0000
12.729	3624.41	1022.95	VV	1.0000e6	-----	0.0906		0.0036	0.0000
12.874	6844.95	1797.26	VV	1.0000e6	-----	0.1711		0.0068	0.0000
12.985	3414.16	588.34	VB	1.0000e6	-----	0.0854		0.0034	0.0000
13.476	3460.50	751.49	BB	1.0000e6	-----	0.0865		0.0035	0.0000
2280403.75		551529.56				28772.7481		1150.9100	-0.2909

Report Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_397.TXT

# Chromatogram

File Name : 9505768-03A

File Name : (:\data\tchrom\btex\varj\J\_397.raw

Method : HP\_J.ins

Time : 0.00 min

Factor: 1

End Time : 17.33 min

Plot Offset: -1 mV

Sample #: SC ;W:25

Date : 05/28/95 05:00

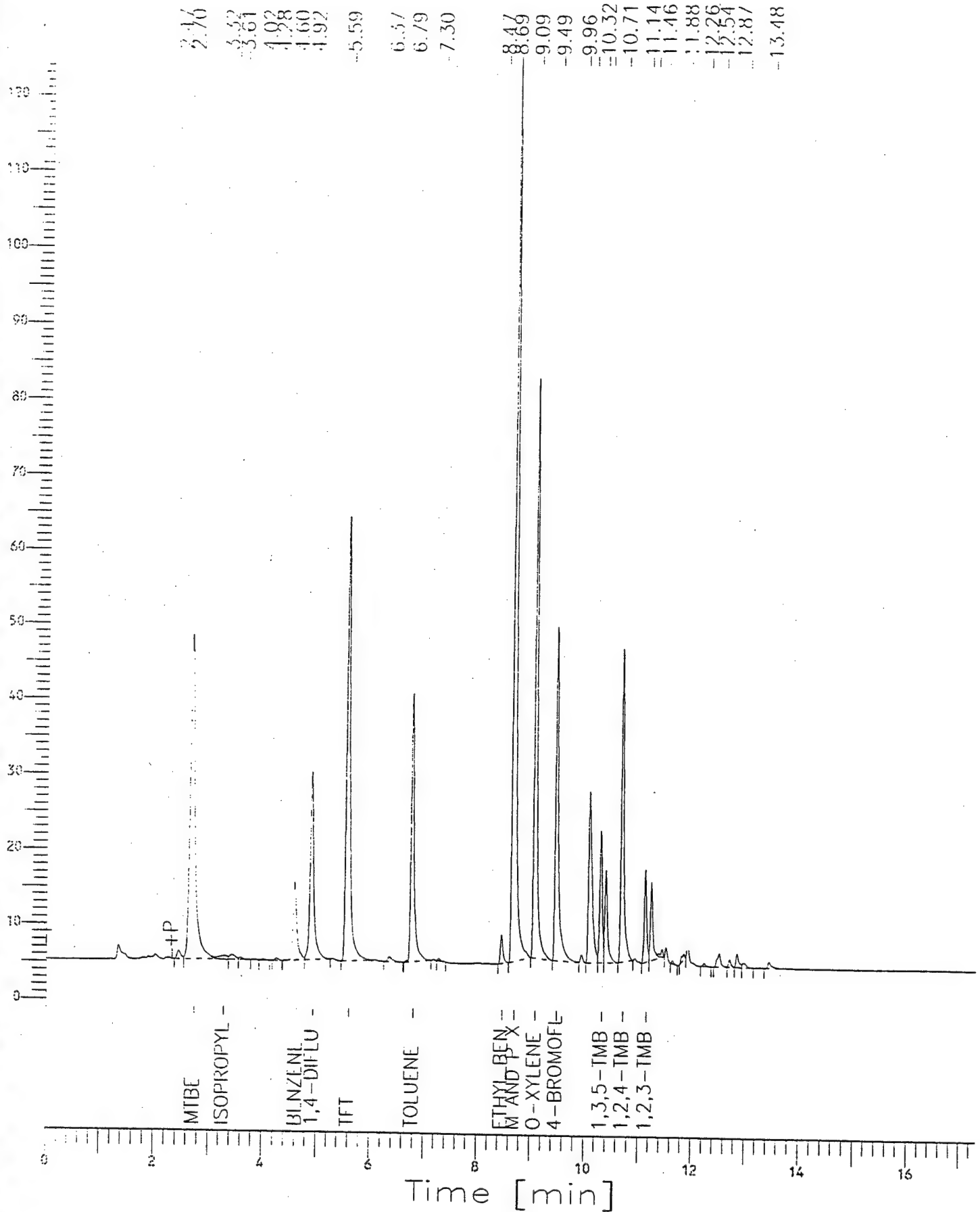
Time of Injection: 05/28/95 04:43

Low Point : -0.71 mV

Plot Scale: 125 mV

Page 1 of 1

High Point : 124.72 mV



```

=====
Software Version: 3.2 <16C20>
Sample Name : BLANK                      Time       : 05/27/95  03:24
Sample Number: B ;W;1                   Study      : BTEXW6;1
Operator    : YN

Instrument   : HP_J                      Channel : A      A/D mV Range : 1000
Injection Sampler : NONE
Vial/Vial   : 0/0

```

```

Interface Serial # : 1092573380   Data Acquisition Time: 05/27/95  03:07
Injection Time     : 0.00 min.
Injection Time     : 17.33 min.
Injection Rate     : 2.0000 pts/sec

```

```

Data File : L:\data\tchrom\btex\varj\J__344.raw
Result File : L:\data\tchrom\btex\varj\J__344.rst
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP_J.ins
Access File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

```

```

Injection Volume : 2 ul                Area Reject : 300.00
Injection Amount : 1.0000             Dilution Factor : 1.00

```

=====

BTEX Area Percent Report

=====

Peak Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/L	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
4.919	117046.00	23482.26	BB	1075.1477	0.4475	108.8650	1,4-DIFLUOROBENZENE	108.8650	-0.0312
5.593	261576.25	55060.00	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0285
9.494	141465.75	30302.30	BB	1414.9568	0.5408	99.9789	4-BROMOFLUOROBENZENE	99.9789	-0.0081
						-----			
520088.00		108844.56				208.8439		208.8439	-0.0677

=====

Report Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_344.TX0

# Chromatogram

Sample Name : BLANK

File Name : l:\data\tchrom\btex\varj\J\_\_344.raw

File : HP\_J.ins

Start Time : 0.00 min

Gain Factor : 1

End Time : 17.33 min

Plot Offset: 3 mV

Sample #: B ;W;1

Date : 05/27/95 03:24

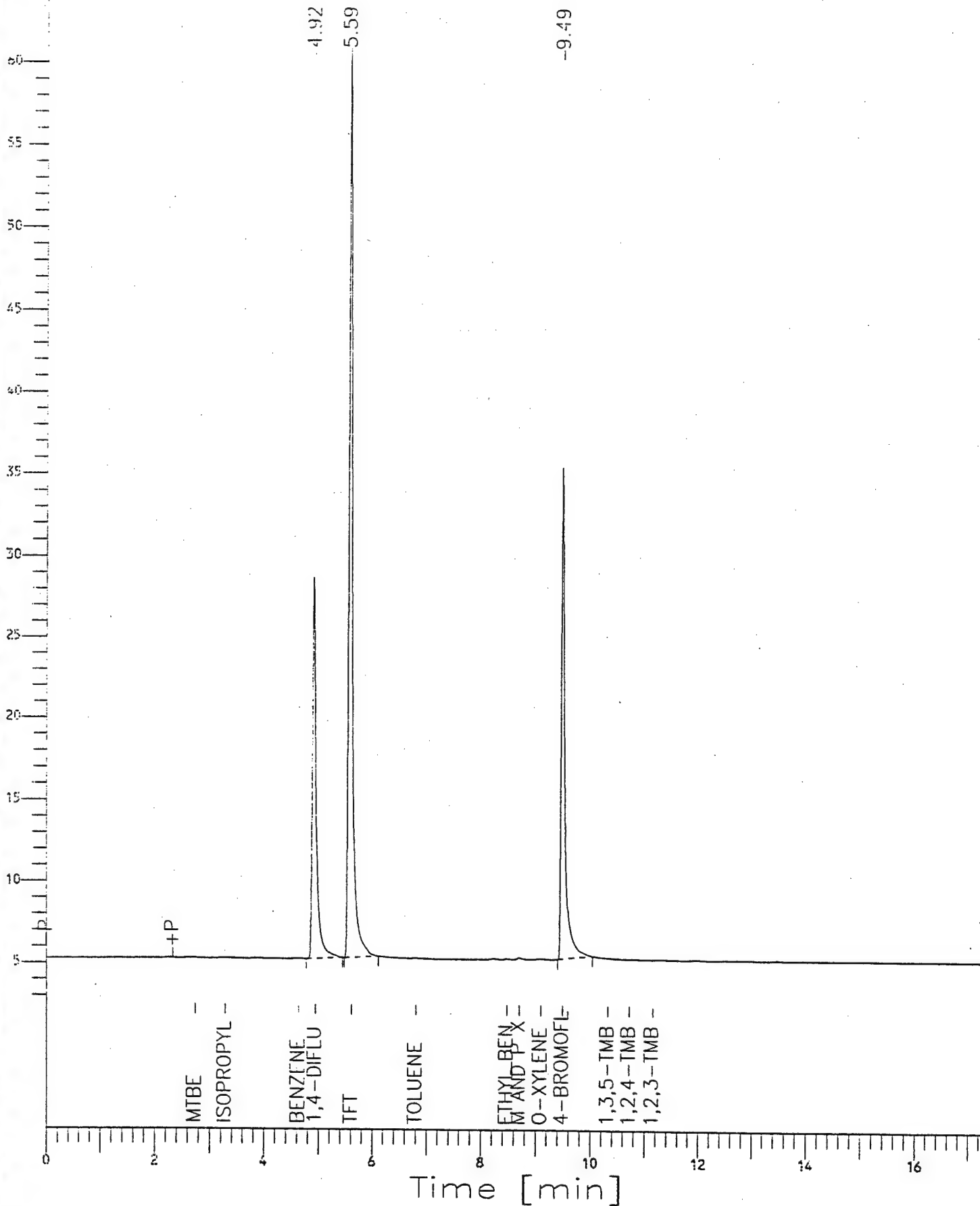
Time of Injection: 05/27/95 03:07

Low Point : 2.51 mV

Plot Scale: 58 mV

Page 1 of 1

High Point : 60.33 mV





=====  
ftware Version: 3.2 <16C20>  
mple Name : LCS\_50                      Time : 05/27/95 02:08  
mple Number: TL ;W;1                    Study : BTEXW6;1  
erator : YN

strument : HP\_J                      Channel : A      A/D mV Range : 1000  
toSampler : NONE  
ck/Vial : 0/0

terface Serial # : 1092573380      Data Acquisition Time: 05/27/95 01:51  
lay Time : 0.00 min.  
d Time : 17.33 min.  
mpling Rate : 2.0000 pts/sec

w Data File : l:\data\tchrom\btex\varj\J\_\_341.raw  
ult File : l:\data\tchrom\btex\varj\J\_\_341.rst  
strument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
ccess File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc  
mple File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
quence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

l. Volume : 2 ul                      Area Reject : 300.00  
mple Amount : 1.0000                  Dilution Factor : 1.00

=====  
BTEX Area Percent Report  
=====

ak Ret Time # [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
2.702	47676.75	7430.31	BB	1031.9971	0.1786	46.1985	MTBE	46.1985	-0.0464
3.251	4391.25	727.80	BB	1257.7127	0.0165	3.4915	Isopropylether	3.4915	-0.0431
4.608	110932.42	22404.12	BV	2517.6504	0.4156	44.0619	Benzene	44.0619	-0.0340
4.919	123507.33	24887.36	VB	1097.1890	0.4627	112.5671	1,4-DIFLUOROBENZENE	112.5671	-0.0309
5.594	266938.75	57877.61	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0281
6.791	102820.50	25326.23	BB	2317.1128	0.3852	44.3744	Toluene	44.3744	-0.0216
8.472	80005.16	21286.82	BV	1733.4951	0.2997	46.1525	Ethyl_Benzene	46.1525	-0.0172
8.695	185617.34	46717.08	VB	1845.4802	0.6954	100.5794	m and p Xylene	100.5794	-0.0169
9.089	81722.50	22202.23	BB	1763.9861	0.3062	46.3283	o-Xylene	46.3283	-0.0168
9.489	163575.00	38526.61	BB	1443.9642	0.6128	113.2819	4-BROMOFLUOROBENZENE	113.2819	-0.0131
1167187.00		267386.19				557.0355		557.0355	-0.2682

ort Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_341.TX0

# Chromatogram

File Name : LCS\_50

File Name : l:\data\tchrom\btex\varj\J\_341.raw

File Name : HP\_J.ins

Time : 0.00 min

File Factor : 1

End Time : 17.33 min

Plot Offset : 2 mV

Sample #: TL ;W;1

Date : 05/27/95 02:08

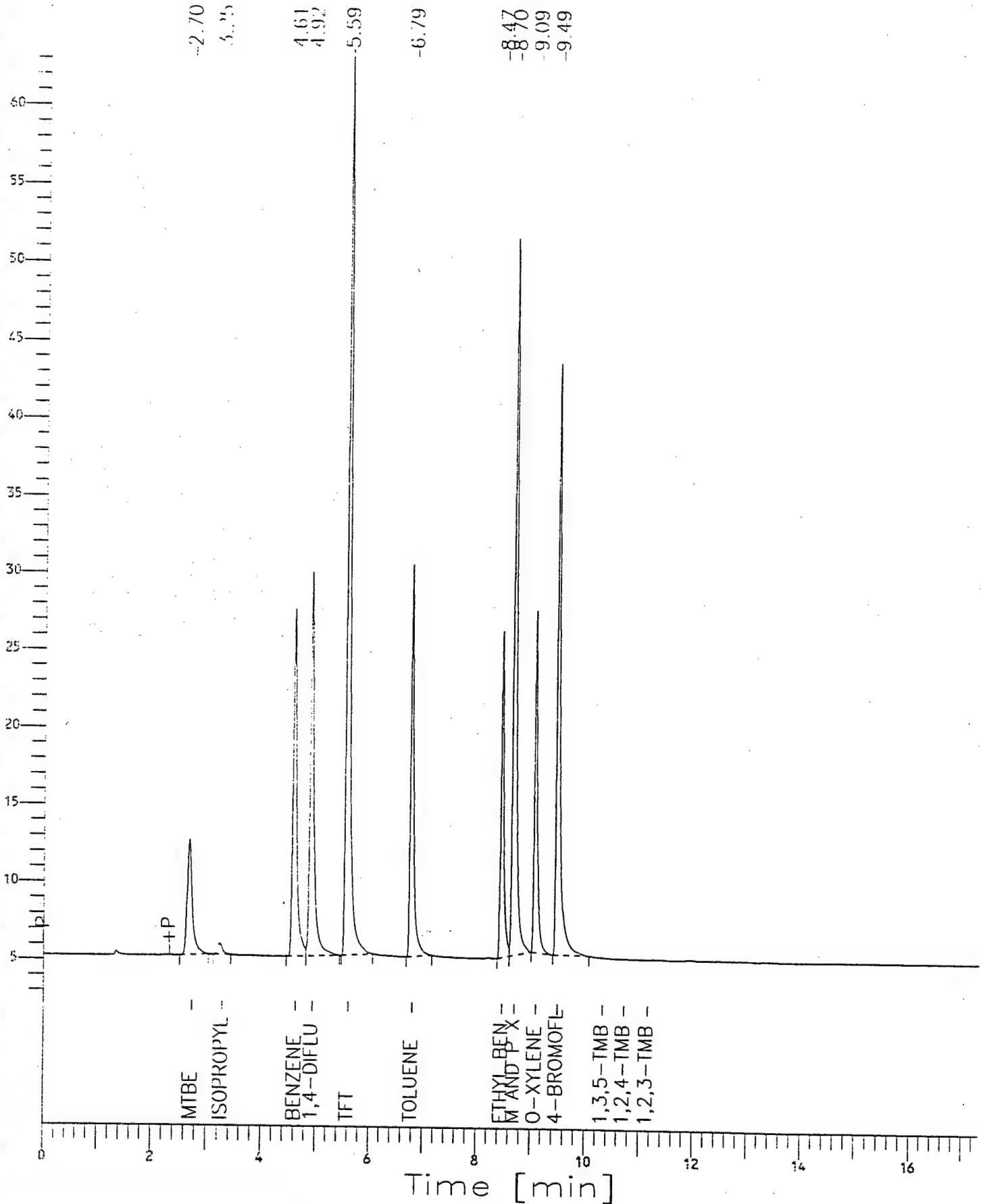
Time of Injection: 05/27/95 01:51

Low Point : 2.38 mV

Plot Scale: 61 mV

Page 1 of 1

High Point : 63.10 mV



=====  
Software Version: 3.2 <16C20>  
Sample Name : STD-50  
Sample Number: TC ;W;1  
Operator : YN  
  
Instrument : HP\_J  
AutoSampler : NONE  
Vial : 0/0  
  
Channel : A A/D mV Range : 1000  
  
Interface Serial # : 1092573380 Data Acquisition Time: 05/27/95 02:16  
Delay Time : 0.00 min.  
Load Time : 17.33 min.  
Sampling Rate : 2.0000 pts/sec  
  
Raw Data File : L:\data\tchrom\btex\varj\J\_\_342.raw  
Result File : L:\data\tchrom\btex\varj\J\_\_342.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
Access File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq  
  
Inj. Volume : 2 ul  
Sample Amount : 1.0000  
Area Reject : 300.00  
Dilution Factor : 1.00  
=====

BTEX Area Percent Report

Peak Ret Time	Area	Height	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
[min]	[uV-sec]	[uV]							
2.701	56070.00	8734.13	BB	1037.5516	0.2089	54.0407	MTBE	54.0407	-0.0468
3.249	67044.25	10178.61	BB	1264.4821	0.2498	53.0211	Isopropylether	53.0211	-0.0452
4.606	135383.50	27374.13	BV	2531.2009	0.5045	53.4859	Benzene	53.4859	-0.0355
4.918	124659.75	25097.76	VB	1103.0945	0.4645	113.0091	1,4-DIFLUOROBENZENE	113.0091	-0.0320
5.593	268375.50	58249.33	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0292
6.790	120191.25	29512.28	BB	2329.5842	0.4479	51.5934	Toluene	51.5934	-0.0229
8.472	90720.12	24319.96	BV	1742.8254	0.3380	52.0535	Ethyl Benzene	52.0535	-0.0170
8.695	199017.38	50430.31	VB	1855.4132	0.7416	107.2631	m and p Xylene	107.2631	-0.0170
9.089	91562.23	24984.28	BB	1773.4805	0.3412	51.6286	o-Xylene	51.6286	-0.0172
9.489	165734.50	39056.55	BB	1451.7362	0.6176	114.1630	4-BROMOFLUOROBENZENE	114.1630	-0.0135
				1318758.50	297937.31	650.2583		650.2583	-0.2762

=====  
Report Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_342.TXT

# Chromatogram

File Name : STD-50

File Name : l:\data\tchrom\btex\varj\J\_342.raw

File Name : HP\_J.ins

Time : 0.00 min

File Factor: 1

End Time : 17.33 min

Plot Offset: 2 mV

Sample #: TC ;W;1

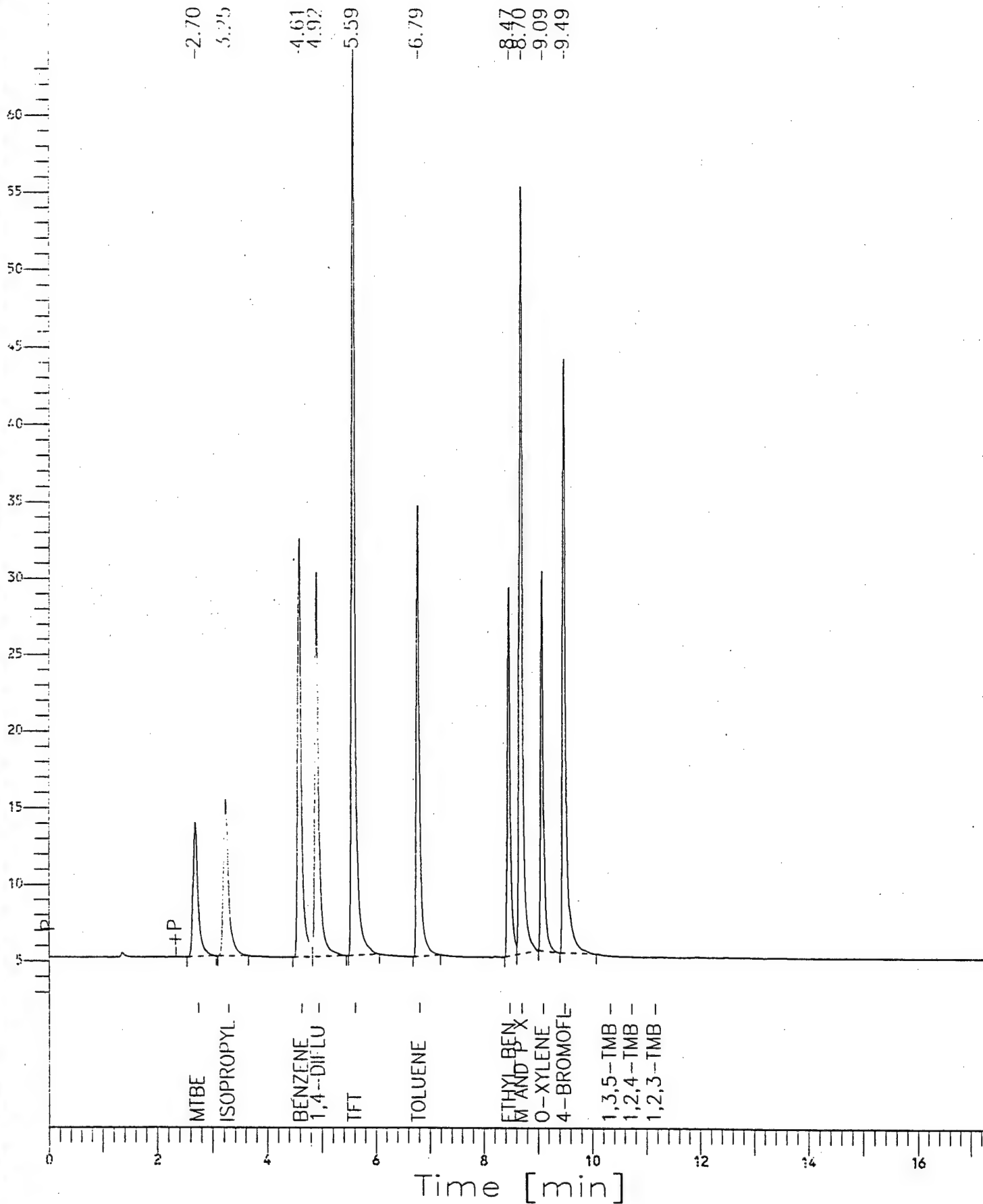
Date : 05/27/95 02:34

Time of Injection: 05/27/95 02:16

Low Point : 2.35 mV

Plot Scale: 61 mV

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Software Version: 3.2 <16C20>  
Sample Name : 9505887-04A MS                      Time : 05/27/95 16:32  
Sample Number: KM ;W;1                            Study : BTEXW6;1  
Operator : YN

Instrument : HP\_J                                      Channel : A                      A/D mV Range : 1000  
AutoSampler : NONE  
Vial/Vial : 0/0

Interface Serial # : 1092573380      Data Acquisition Time: 05/27/95 16:15  
Play Time : 0.00 min.  
Load Time : 17.33 min.  
Sampling Rate : 2.0000 pts/sec

Raw Data File : l:\data\tchrom\btex\varj\J\_\_368.raw  
Result File : l:\data\tchrom\btex\varj\J\_\_368.rst  
Instrument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
Process File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ1.prc  
Sample File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
Sequence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

Injection Volume : 2 ul                                      Area Reject : 300.00  
Sample Amount : 1.0000                                      Dilution Factor : 1.00

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BTEX Area Percent Report

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Peak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/Amount	ISTD Resp Ratio	Amount ug/L	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	2.703	21981.50	3433.45	BB	1037.3467	0.0819	21.1901	MTBE	21.1901	-0.0451
2	3.252	26380.00	4027.65	BB	1264.2324	0.0983	20.8664	Isopropylether	20.8664	-0.0429
3	4.607	54260.67	10781.56	BV	2530.7009	0.2022	21.4410	Benzene	21.4410	-0.0346
4	4.919	122215.84	24532.39	VB	1102.8766	0.4555	110.8155	1,4-DIFLUOROBENZENE	110.8155	-0.0312
5	5.594	268322.50	57200.85	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0283
6	6.792	46683.00	11121.12	BB	2329.1240	0.1740	20.0432	Toluene	20.0432	-0.0209
7	8.476	33863.47	8514.04	BV	1742.4812	0.1262	19.4341	Ethyl_Benzene	19.4341	-0.0128
8	8.699	69468.53	16396.06	VB	1855.0468	0.2589	37.4484	m and p Xylene	37.4484	-0.0134
9	9.093	33297.50	8579.08	BB	1773.1303	0.1241	18.7789	o-Xylene	18.7789	-0.0128
10	9.494	151111.00	33730.23	BB	1451.4496	0.5632	104.1104	4-BROMOFLUOROBENZENE	104.1104	-0.0084
		827584.00	178316.44				374.1280		374.1280	-0.2502

Report Stored in ASCII File: l:\data\tchrom\btex\varj\J\_\_368.TX0

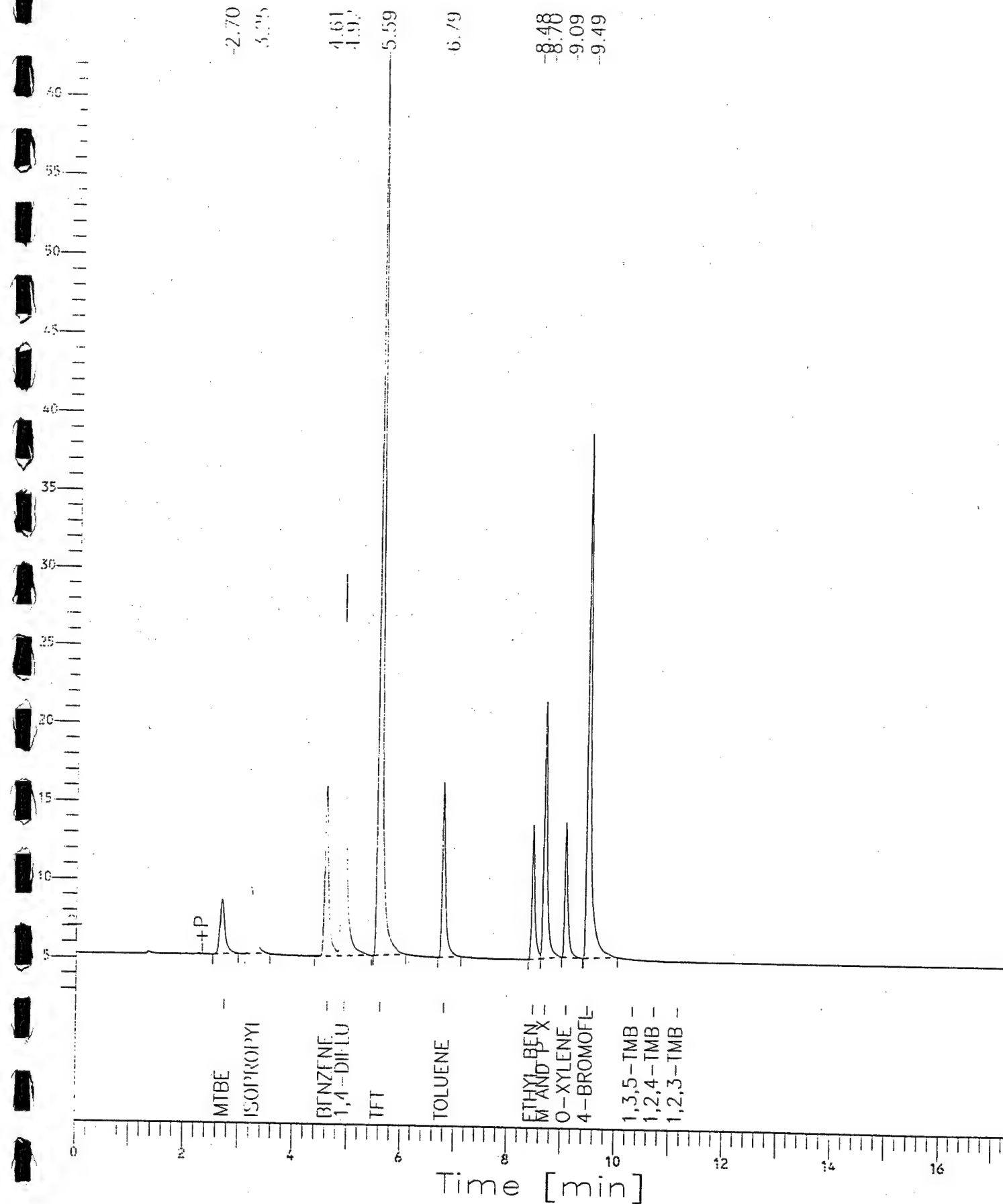
# Chromatogram

File Name : 9505887-04A MS  
 eName : l:\data\tchrom\btex\varj\J\_\_368.raw  
 n : HP\_J.ins  
 Time : 0.00 min  
 Factor : 1

End Time : 17.33 min  
 Plot Offset: 2 mV

Sample #: KM ;W;1  
 Date : 05/27/95 16:32  
 Time of Injection: 05/27/95 16:15  
 Low Point : 2.40 mV  
 Plot Scale: 60 mV  
 High Point : 62.45 mV

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ftware Version: 3.2 <16C20>  
mple Name : 9505887-04A MSD                      Time : 05/27/95 16:58  
mple Number: KMD;W;1                              Study : BTEXW6;1  
erator : YN

strument : HP\_J                                      Channel : A                      A/D mV Range : 1000  
toSampler : NONE  
ck/Vial : 0/0

terface Serial # : 1092573380      Data Acquisition Time: 05/27/95 16:40  
lay Time : 0.00 min.  
d Time : 1.33 min.  
mpling Rate : 2.0000 pts/sec

w Data File : L:\data\tchrom\btex\varj\J\_\_369.raw  
sult File : L:\data\tchrom\btex\varj\J\_\_369.rst  
strument File: L:\DATA\TCHROM\BTEX\METHODS\HP\_J.ins  
ccess File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJI.prc  
mple File : L:\DATA\TCHROM\BTEX\METHODS\JW042695.smp  
quence File : L:\DATA\TCHROM\BTEX\METHODS\BTEXJ.seq

j. Volume : 2 ul                                      Area Reject : 300.00  
mple Amount : 1.0000                                  Dilution Factor : 1.00

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BTEX Area Percent Report  
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ak #	Ret Time [min]	Area [uV-sec]	Height [uV]	BL	Area/ Amount	ISTD Resp Ratio	Amount ug/l	Component Name	RAW AMOUNT ug/L	RT SHIFT MIN
1	2.701	22345.00	3456.40	BB	1047.2178	0.0825	21.3375	MTBE	21.3375	-0.0471
2	3.249	26807.50	4010.47	BB	1276.2623	0.0990	21.0047	Isopropylether	21.0047	-0.0453
3	4.605	55173.23	10690.05	BV	2554.7820	0.2037	21.5961	Benzene	21.5961	-0.0371
4	4.916	123052.78	23936.15	VB	1113.3711	0.4543	110.5227	1,4-DIFLUOROBENZENE	110.5227	-0.0338
5	5.590	270875.75	56281.32	BB	-----	1.0000	0.0000	TFT	0.0000	-0.0315
6	6.788	47256.00	10844.24	BB	2351.2874	0.1745	20.0979	Toluene	20.0979	-0.0248
7	8.473	34411.02	8235.03	BV	1759.0618	0.1270	19.5621	Ethyl_Benzene	19.5621	-0.0164
8	8.696	72630.49	15883.50	VV	1872.6987	0.2681	38.7839	m and p Xylene	38.7839	-0.0161
9	9.091	34731.00	8247.85	VB	1790.0026	0.1282	19.4028	o-Xylene	19.4028	-0.0152
0	9.492	149486.50	31174.11	BB	1465.2610	0.5519	102.0204	4-BROMOFLUOROBENZENE	102.0204	-0.0099
		836769.25	172759.09				374.3280		374.3280	-0.2771

=====  
.D  
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port Stored in ASCII File: L:\data\tchrom\btex\varj\J\_\_369.TX0

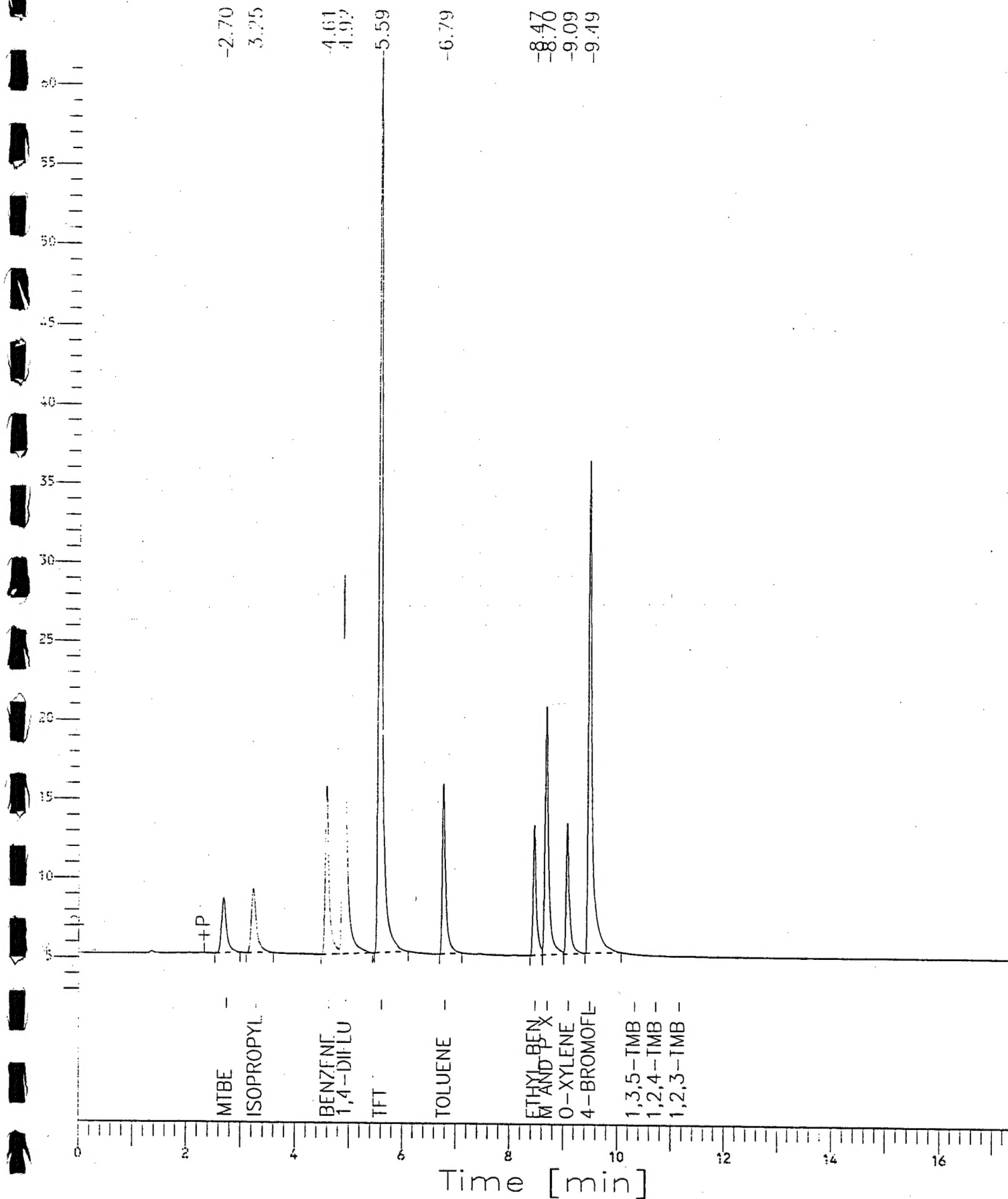
# Chromatogram

File Name : 9505887-04A MSD  
 File Name : l:\data\tchrom\btex\varj\J\_\_369.raw  
 File Name : HP\_J.ins  
 Time : 0.00 min  
 File Factor: 1

End Time : 17.33 min  
 Plot Offset: 2 mV

Sample #: KMD;W;1  
 Date : 05/27/95 16:58  
 Time of Injection: 05/27/95 16:40  
 Low Point : 2.44 mV  
 Plot Scale: 59 mV  
 High Point : 61.62 mV

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WORK ORDER # 950512

TEST: S.V.

SAMPLE	DATE	AMOUNT (GALL. OR GRAMS)	DATE 12 /	AMOUNT (GALL.)	DATE 12 /	AMOUNT (GALL.)	FINAL VOL. (GALL.)	TECH	COMMENTS
02B	05/15	30.0	10-17	1.0	~	~	1.0	JK	
03B									
04B									
05B									
06B							↓		
07B							10.0		
08B							3.0		
09B							1.0		
10B									
11B									
12B									
13B									
14A 02Bms					10-11	1.0			
15A 02BmsD	↓	↓	↓	↓	10-11	1.0	↓	↓	

Q.C. BATCH INFORMATION

BLANK	950515 - SNB1
LC	SNLcs
MATRIX SPIKE	950512 - 02Bms
MATRIX SPIKE DUP.	02BmsD

TEST: S.V.

Q.C. BATCH INFORMATION

BLANK	950512- SNBI
LC	SNLCS
MATRIX SPIKE	9505204- 05Ams
MATRIX SPIKE DUP.	05AmsD